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SALVARSAN AND NEOSALVARSAN IN SYPHILIS

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After an experience of more than six years with salvarsan and neosalvarsan, pretty definite conclusions as to their value and also as to their limitations should be at hand.

The early hope of the originators of the drug, that by one massive dose the disease could be immediately eradicated, was soon abandoned. Salvarsan was put on the market for general use in January, 1911, but before this date I had had the opportunity of giving injections in many cases experimentally, in all of which relapses occurred, thus proving the inadequacy of a single injection. During the first year of its use, owing to the mistaken idea that a single dose was sufficient, there were many recurrences and some fatalities, the latter being largely due to the fact that some patients could not tolerate a full dose at the initial injection.

The early method of administering the drug was by subcutaneous injection, which was painful and frequently resulted in local necrosis; and not infrequently it became encapsulated, and therefore was not efficient, owing to nonabsorption. Later, it was administered intramuscularly in oily emulsions, usually with better results, but necroses not infrequently followed these. Still later, the intravenous method was introduced, and this method is the one of choice of most workers at present. As time went on and experience increased, repeated doses were given and mercury was added to the treatment, until at present very few employ salvarsan alone. The combined use of salvarsan and hydrargyrum is now the rule, with the addition of potassium iodid in certain cases. For many years the technic was chaotic. One is safe in saying that no definite technic has as yet been perfected for all cases.

To discuss properly the advantages which this drug possesses in the treatment of syphilis, it is necessary to consider the management of the disease in various phases. At the outset, it must be stated that the success in treatment depends largely on the stage of the disease at which it is instituted. The earlier the disease is recognized and treatment begun, the better are the prospects of effecting its eradication. That salvarsan has a remarkable influence on syphilis, no one will deny, and it is equally true that it has its disadvantages. Its chief disadvantages are: (1) the difficulty encountered in its administration; (2) the reactions which follow in a certain percentage of cases, together with untoward results which occasionally occur, and, (3) the fact that, except in a small proportion of early cases, it cannot be said to be curative.

Concerning the first disadvantage, many physicians do not care to undertake the fulfilment of the requirements necessitated in intravenous medication. In this particular instance, the technical difficulties are many, and in the older offices and clinics in which syphilis was largely treated it became necessary to add practically a new department to carry out this work successfully. The many failures constantly noted in giving intravenous injections furnish ample proof of this disadvantage. Were it possible to get results by administering it by mouth or by hypodermic or intramuscular injections, salvarsan would have a much broader use.[1]

REACTIONS

Concerning the reactions and untoward results, there is much for serious consideration. Probably from 5 to 15 per cent. of all injections of neosalvarsan are followed by some reaction, and the percentage with salvarsan is somewhat larger. These may be classed as early (that is, during the first few hours) and delayed (occurring after intervals of from twenty-four hours to several days or longer).

Early reactions consist of flushing of the face, suffusion of the eyes, dyspnea and a sense of fulness in the head, with some precardial distress, all of which pass off within a few minutes, as a rule, but exceptionally may be prolonged for some hours. Occasionally, vomiting will occur before the injection is completed, or, at times, almost as soon as the injection is well started. In other instances, in from one to four hours after the injection, a chill may occur, followed by a rise in temperature, nausea, vomiting, headache and diarrhea, all of which pass off within a few hours, leaving the patient feeling, as a rule, completely normal; or, as exceptionally happens, a feeling of weakness and depression may exist for a day or two. Angioneurotic disturbances, so called, such as urticaria and erythema, both simple and multiform in character, are occasionally seen during this period. Only rarely do these immediate reactions become of such severity as to cause apprehension on the part of the physician.

Delayed reactions often occur after twenty-four hours, several days or longer, and are commonly gastro-intestinal. They are initiated by a chill, or chilly sensations, followed by a rise in temperature, nausea and vomiting. More rarely, malaise may be present for several days, when the patient becomes actively ill, with nausea, vomiting and elevation of temperature, accompanied by jaundice or a cutaneous exanthem. When jaundice supervenes, involvement of the liver has occurred, due, as most observers believe, to the direct action of arsenic on the liver cells. In a very few, a general exfoliative dermatitis,

1. Practically all of the intravenous injections given in our office are given by my associate, Dr. James Herbert Mitchell.

or a generalized toxic rash, simulating an exudative erythema of persistent nature, may occur. Fortunately, these intense, delayed reactions are rare. Great caution must be exercised in the future treatment of this class of patients. Finally, renal disturbances, characterized by suppression of the urine, due to the deleterious action of the arsenic on the renal vessels, may result.

Untoward results are closely associated with reactions, and those exciting chief interest are disturbances of the liver, kidneys and nervous system, and cases of general exfoliative dermatitis. A number of fatalities are on record due to the deleterious action of the drug on the liver. Neurorecurrences have been largely eliminated through more intensive treatment.

Leredde and Jamin[2] believe that the cerebral accidents which have given so much anxiety are explainable on the grounds of the Herxheimer reaction. In an intensive study of the causes of death following injections of salvarsan, they state that two theories are advanced: first, genuine intolerance; second, that predispositions due to organic lesions preexisting are created by syphilis itself, and give rise to reactions provoked by the too energetic therapeutic reaction. They further state that Milian is the strongest supporter of the theory of intolerance, and maintains that the cerebral lesions which are found at necropsy (serous apoplexy) or the nitroid crises are due to the hypo-alkalinity of the injection. He says that certain patients are predisposed to these crises because of hypo-alkalinity of the blood. Against this is cited the fact that certain patients exhibit nitroid crises during the course of a neutral neosalvarsan injection.

Leredde and Jamin found, in a study of forty cases of death with epileptiform seizures, that only one was accompanied during the injection by this nitroid crisis. The principal argument of Milian is that salvarsan is a vasodilator; but Leredde believes this is insufficient reason to attribute the cerebral accidents to the drug. Vasodilatation determines the reaction of Herxheimer in the areas of syphilitic lesions. In the reaction of Herxheimer, the hypothesis is that death follows a meningeal or cortical reaction due to excessive and sudden destruction of spirochetes following an excessive dose of salvarsan. In the series of forty cases, spinal puncture was performed during life in twelve cases, and ten of these showed pathologic findings.

Leredde and Jamin believe that neither the theory of ordinary intoxication nor that of intolerance will explain these facts, which are readily explainable on the basis of the Herxheimer reaction. Twenty-nine of the forty cases were examined postmortem, and in fourteen of the twenty-nine, important nervous lesions were found.

Eight deaths occurred during the primary period, fifteen during the secondary period, and seventeen in old syphilis.

In six cases, death occurred after the first injection; in twenty-five, after the second; in six, after the third; in one, after the fourth; in one, after the fifth, and in one after the sixth.

Certain errors of technic are to be found. The most frequent one is the shortness of the interval between the injections: two days in one case, three in another, four in another, and in one case the injections were given daily. If intolerance were the cause of death, the number of cases of death should increase with the number of injections. It would be the same if it were ordinary intoxication. Finally, if anaphylaxis were concerned, one cannot understand how death should follow the first injection. It must be noted that in a few cases death has followed a very small dose, notably in one case of Wechselmann's, who gives an excellent description, comporting with the theory of the reaction of Herxheimer. In some of the cases it must also be noted that the initial dose was the maximum dose.

Leredde and Jamin gave 3,777 injections from 1910 to 1913. Three-fourths of these averaged a dosage of from 0.6 to 0.9 gm. of neosalvarsan. Out or 632 patients, one patient died following 0.15 of neosalvarsan. In this patient, the general paresis with the cerebral lesions presented the necessary conditions for death. In this case neither intoxication nor intolerance explains the cause of death. The explanation is that in this particular case the dose, even though small, was too high for the patient.

Meirowsky and Kretzmer,[3] in a review of 109 fatal cases following salvarsan injections, state that 41 per cent. occurred in the secondary period, three fifths of which resulted from encephalitis. Forty-five per cent. of these occurred in cases in which the dose exceeded 0.5 gm. Sixty-six per cent. of the patients received doses of over 0.5 gm. They conclude that the size of the dose, therefore, is the most important factor in the causation of encephalitis, the danger decreasing in proportion to the duration of the interval between injections.

In the study of the cause of reactions in general, most observers, during the earlier period of the use of salvarsan, started with the hypothesis that all salvarsan was identical, and that trouble arose from faulty technic, individual susceptibility, or so-called anaphylaxis. That faulty technic was responsible for much trouble was proved when a marked reduction in reactions occurred on the constant use of freshly distilled water. On the question of so-called anaphylaxis, the statistics of Leredde[4] throw some light. He stated that, in 1910, sixteen deaths occurred out of 50,000 injections; in 1911, ninety-two deaths among 800,000 injections; in 1912, sixty-six deaths among 1,280,000 injections, and in 1913, thirty-seven among 2,000,000 injections. Of these, 104 followed the first injection, and only three occurred subsequent to the fourth injection. These results testify strongly against so-called anaphylaxis.

In a series of 8,000 injections, Fordyce,[5] in 1914, had not encountered an anaphylactic reaction.

In the clinic of Bordeaux, Morin and Joulia[6] report thus on reactions: During a period of nine months, 192 injections were given to 100 patients. Serious reactions were few, but moderate reactions were quite frequent. Febrile reactions were studied in eighty-seven cases. Fifty-two of these patients had fever in the course of the treatment. It usually occurred after the first injection. Generally, it was very slight, but in a few cases severe. The number of reactions in men and in women are given in the accompanying tables.

On reading Table 1 horizontally, it is seen that after the first injection there were 41 reactions out of 57; after the second injection, there were 16 reactions out of 41; after the third and fourth injections, there were but 7 reactions in 22 cases. On this, Morin and Joulia

2. Leredde and Jamin: Bull. de dermat. et de syph., January, 1914.

3. Meirowsky and Kretzmer: Praktische Ergebnisse auf dem Gebiete der Haut- und Geschlechtsheilung, Wiesbaden, 1914.

4. Leredde: Bull. Soc. franç. de dermat. et de syph., 1914, p. 91.

5. Fordyce: Jour. Cutan. Dis., 1914, **32**, 1.

6. Morin and Joulia: Ann. de dermat. et de syph., February, 1914.

conclude that the chances of elevation of temperature diminish with the number of injections.

It is evident from these two tables that febrile reactions are less frequent in women than in men. All severe reactions followed the first injection, and after the second injection there was no severe reaction in any case.

In one of our series of 253 injections noted elsewhere in this paper, forty-three were followed by reactions. Of these, seventeen, or 40 per cent., occurred after the first injection, when anaphylaxis could not be considered. While anaphylaxis must be

TABLE 1.—NUMBER OF REACTIONS IN MEN

	Severe Reaction	Moderate Reaction	Mild Reaction	No Reaction
Injection 1.....	16	17	8	16
Injection 2.....	3	11	2	25
Injection 3.....	1	2	4	15
Injection 4.....	0	1	0	10

recognized, it must play but a small rôle in the production of reactions. Individual susceptibility must be recognized, and undoubtedly accounts for a moderate number of reactions. The most important consideration is the question of varying degrees of toxicity of the drug as we use it.

In a series of marked reactions recorded by Dr. Mitchell and myself,[7] a few months ago, six severe reactions occurred at once with a given lot of salvarsan. Anaphylaxis, so called, could be ruled out of these, as in one of the group it was the patient's first treatment, and in another it followed the second treatment. Individual susceptibility could hardly account for them, as four had shown no previous susceptibility. Faulty technic could not be considered, as it fulfilled the requirements now demanded. We concluded, therefore, that toxicity was the factor. One of the ampules of this lot was forwarded to Dr. Schamberg, together with an ampule of a lot with which we had had no difficulty, with the request that his laboratory test these as to toxicity, which he kindly acceded to, with the following result: Sixty mg. per kilogram of body weight, which is the amount demanded by this laboratory as the *dosis tolerata* of its product before it is sent out, were injected into two rabbits. One died after two days, the second after five days. The control ampule, which had given us no trouble, was similarly injected into another animal, with no untoward results.

We also asked for the animal results in a certain control number we had used of arsenobenzol without reactions, and the answer was that the animal used for this lot lived indefinitely, showing that the toxicity of this also was within the limits of animal safety.

We believe, therefore, that the answer to the question of cause in this group of reactions is increased toxicity in this particular lot, the animal experiments confirming the clinical results. Whether or not animal experimentation will disclose the fact in all instances that a given lot is likely to produce reaction is as yet an unanswered question; but the fact that the foregoing lot, which was apparently unusually toxic in man in one series, was toxic beyond the limits of animal safety as demanded by the Schamberg laboratories is significant.

7. Ormsby, O. S., and Mitchell, J. H.: Arsenobenzol in the Treatment of Syphilis, THE JOURNAL A. M. A., March 18, 1916, p. 867.

Through the courtesy of Dr. Schamberg, the following facts are taken from an unpublished manuscript of Dr. Schamberg and his associates, John A. Kolmer and George W. Raiziss.[8] The main facts embodied in the work, however, were presented at the meeting of the American Dermatological Association in 1916. The complete paper is to be published soon.

In a careful experimental study of the causes of reaction, Schamberg believes that too much stress has been laid on errors of technic and personal factors, and too little attention has been paid to the study of causes related to the drug itself. He states that salvarsan is an extremely complex substance. During its elaboration, many intermediate products are prepared. On the purity of these the purity of the final compound depends to a degree. During this complicated process, certain substances in addition to salvarsan occur. As salvarsan cannot be purified by repeated crystallization, it cannot be regarded as an absolutely pure compound. One of the dangerous by-products which may occur from oxidation or insufficient reduction is amino-oxyphenyl arsenoxid, which is about twenty times more poisonous than salvarsan. The amount of this material in the commercial product is usually less than 1 per cent., the best preparations containing, according to Ehrlich, from 0.5 to 0.8 per cent.

The immediate reactions, which are vasomotor, are due, according to Schamberg, to something in the drug which induces a paresis of the blood vessels, characterized by dilatation, and not infrequently by leakage of serum into the tisues. These symptoms are regarded by him as vasoparetic in character. From various experiences, he suspects that they are produced by traces of an impurity in the drug, which he has designated as "Substance X." On the comparative amount of this material depends the severity of the early reactions.

Schamberg further states that there is some reason to believe that preparations which give the best toxicity tests in animals are prone to give the most satisfactory clinical results as regards reaction, but he is not convinced that Substance X can always be discovered by its toxicity record on animals. Some of his

TABLE 2.—NUMBER OF REACTIONS IN WOMEN

	Severe Reaction	Moderate Reaction	Mild Reaction	No Reaction
Injection 1.....	3	4	3	18
Injection 2.....	0	3	3	13
Injection 3.....	0	0	0	11
Injection 4.....	0	0	0	3

experiments have caused him to reserve judgment on this point for the present.

Regarding neosalvarsan, in the report mentioned above we stated that, in view of an increased number of immediate, sharp reactions, we believed the supply then being used was also more toxic than previous lots. I have recently gone over some of our records with the following results:

In a series of 253 consecutive injections of neosalvarsan given to eighty-six patients, before the temporary withdrawal of the drug from the market, thirty-two were followed by reactions of varying degree, none immediate, and 210 were followed by no reaction,

8. Schamberg, Kolmer and Raiziss: American Dermatological Association, Washington, D. C., May 8-10, 1916.

a total of 17 per cent. of the injections presenting reactions.

In another series of 209 consecutive injections of neosalvarsan, given to eighty-two patients after the drug was restored, twenty-four were followed by reactions (many immediate), and in 185 no reactions occurred, a total of 11.5 per cent.

In a third series of 258 injections, given to eighty-nine patients during the four months ending February 15, 230 were followed by no reactions, and twenty-eight, or about 10 per cent., by reactions, chiefly immediate. These statistics apparently disprove increased toxicity as a whole, as the percentage of reactions in the first group was 17 per cent. before the temporary withdrawal, and 11.5 per cent. in the first group immediately after its restoration, and 10 per cent. recently. However, in view of the fact that the recent reactions were immediate and sharp, it still appears that certain lots of neosalvarsan are also more toxic than formerly, but not sufficiently so to cause anxiety.

In a large experience with arsenobenzol prepared by laboratories under the direction of Dr. Schamberg, we encountered fewer reactions than with salvarsan or neosalvarsan.[7]

CONTRAINDICATIONS

When salvarsan was first used, warning was directed particularly against giving the drug to patients with disorders of the kidneys, heart, vascular system and eyes. With increased experience, few of the original contraindications have remained as such. Where organic changes have occurred in any vital organ, the treatment should be given with care and always initiated with a small dose.

PRECAUTIONS

In order to safeguard the patient to be treated with salvarsan, it is absolutely essential that the technic be correct. This includes the use of freshly distilled and sterilized water for making the sodium hydroxid, the sodium chlorid and the salvarsan solutions.

The initial dose should always be small: 0.1 or 0.2 gm. of salvarsan, or 0.2 or 0.3 gm. of neosalvarsan. Should an idiosyncrasy be present, serious results are thus avoided.

It is well to have the patient on a restricted diet immediately preceding the injection, and elimination should have been promoted by catharsis. In the absence of the contraindications noted, this procedure offers most promise for good results.

CLINICAL RESULTS

The remarkable clinical achievements of salvarsan need not be considered in detail. The rapid healing of infectious lesions of the skin and mucous membranes, and the gain in weight and general health are too well known to need emphasis here.

As has been previously stated, a definite technic cannot be outlined, as the patient has to be considered individually, as well as the disease with which he is suffering, and the stage and severity of the latter. In a review of the enormous literature of the subject, the general trend now appears to be to give salvarsan and mercury in courses of from five to eight injections of the former and from twelve to twenty injections of the latter, repeating the courses at intervals of from six to eight weeks and as many times as appears necessary in individual cases. The method employed by us, which follows, is perhaps an average of that used in various parts of the world.

We divide our treatment into courses of from five to eight injections of salvarsan and twelve to twenty injections of mercury, or the equivalent of the latter in inunctions. The interval between salvarsan injections is from seven to fourteen days, while the mercurial injections are given every second day, if a soluble salt is used, and weekly if an insoluble one is employed. The soluble salt usually selected is mercuric chlorid, in dosage of one-fourth grain, and mercuric salicylate in dosage of from 1 to 2 grains.

In the chancre stage, treatment is instituted with salvarsan, and one course is usually sufficient. Many of these patients have not developed a positive Wassermann and have remained free from symptoms for some years.

In active syphilis, mercury precedes salvarsan, to prevent neurorecurrences, and three courses are given, with a rest of from six to eight weeks between courses. If after the termination of these the reaction remains negative a year, a provocative treatment is given, when, if not followed by a positive reaction and the spinal fluid is found normal, a prolonged rest is given.

In tertiary and latent cases, several courses are given, if necessary, together with potassium iodid.

In involvement of the nervous system, intravenous medication with salvarsan, together with intramuscular mercurial injections, precedes intraspinal medication. In the latter, we have employed only the Swift-Ellis method of injecting salvarsanized serum. We have not used the Ogilvie[9] method of direct salvarsan injections, nor have we used intracranial injections. The latter methods have been efficient in the hands of others. We insist on energetic treatment early, and believe that many of the failures are directly attributable to insufficient treatment. In a few selected cases, we have employed the intensive method of Pollitzer with good results, but cannot accept it as routine.

In a recent report from the clinic of Professor Jadassohn (Bern), Nägeli[10] states that 900 syphilitic patients were given 7,000 injections of salvarsan and neosalvarsan with no fatalities and few reactions. The initial dose employed in this clinic is always small: 0.1 or 0.2 gm. of salvarsan and 0.15 or 0.3 gm. of neosalvarsan, and as a maximum dose 0.3 gm. of salvarsan in the case of women, and 0.4 gm. in the case of men, or 0.45 and 0.6 gm., respectively, of neosalvarsan. The absence of reactions in their cases is attributed to small dosage. The interval between injections averages one week, though in certain cases four days has been the interval. Injections of mercury, usually insoluble preparations, are added, and in certain cases potassium iodid also is used. They recommend repeating the dose before the Wassermann reaction becomes positive or before symptoms begin to develop.

Pollitzer[11] gives three injections of large doses of salvarsan at twenty-four hour intervals, followed by twelve mercurial injections. In secondary syphilis, three courses are given, with two month intervals between courses. In older cases, treatment is continued until the Wassermann reaction becomes negative, and subsequent to this two courses are given. After a year of negative Wassermann reactions, a provocative injection is given and an examination of the spinal fluid is made.

9. Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, The Journal A. M. A., Nov. 28, 1914, p. 1936.
10. Nägeli: Corr.-Bl. f. schweiz. Aerzte, October, 1915.
11. Pollitzer: Jour. Cutan. Dis., 1916, 34, 633.

Nicolas and Moutot,[12] in 9,000 injections, covering a period of three years, had two fatalities. In the group were 200 cases of primary syphilis, the chancre being of from three to thirty days' duration. These were treated with four or five injections, at eight day intervals, or with four injections, followed later by two more. Most had subsequent mercurial treatment. A few of this group had recurrences; two had reinfections. In secondary syphilis, they record many recurrences after eight injections. Among the cases, in addition to the two fatalities, were many reactions, a few with coma or epileptoid seizures, and three cases of generalized exfoliative dermatitis, two cases of optic neuritis, and six of labyrinthitis.

Goubeau[13] uses salvarsan, mercury and potassium iodid in all cases. In primary syphilis he recommends excision of the chancre, forty day treatment with injections of mercury benzoate, five injections of salvarsan, and lastly potassium iodid by mouth for forty days. Five of six cases were apparently cured by this method. In secondary syphilis, each period consists of five injections of salvarsan, followed by a series of mercurial injections, this followed by a period of potassium iodid by mouth. He rarely gives more than two such periods. In sixteen of twenty-four patients, symptomatic and serologic cure was obtained. Eight had recurrences. In thirteen latent cases treated by this method, all the patients were serologically cured, with no relapses in two years. Patients with hereditary and nervous syphilis were improved.

In a recent contribution, Fordyce[14] recommends the use of salvarsan and mercury in courses, each consisting of five or six injections of salvarsan, in dosage of from 0.3 to 0.5 gm. for men, and from 0.25 to 0.4 gm. for women, at intervals of from one week to ten days, together with from twenty to thirty injections of a soluble salt of mercury, repeated daily or every second day, or from ten to twelve of an insoluble salt, repeated weekly.

In primary syphilis, before the Wassermann reaction becomes positive, two courses are given. In secondary syphilis, three courses are frequently necessary. In tertiary and latent cases, mixed treatment with potassium iodid and mercury is frequently added. In visceral cases, he recommends salvarsan in small dosage.

Fordyce gives as criteria of a cure a negative Wassermann reaction for at least a year, continuing so after a provocative injection, and a normal spinal fluid, with certain exceptions. He urges energetic treatment in all cases.

COMPARATIVE VALUE OF SALVARSAN AND NEOSALVARSAN

In a study of comparative results with salvarsan and neosalvarsan, Whitehouse and Clarke[15] based conclusions on an experience of 317 injections of salvarsan to 104 patients, and 180 injections of neosalvarsan given to forty-six patients. They obtained nearly 20 per cent. more permanent negative results serologically with salvarsan than with neosalvarsan. Clinically, the drugs were equally efficient. They considered five doses of neosalvarsan equivalent in end-results to four of salvarsan. In this series, 20 per cent. of the cases under salvarsan showed reactions, as against 8 per cent. under neosalvarsan. Nelson and Harris[16] in the army service, state that in a period of nine months patients were each given five injections of neosalvarsan, combined with intensive mercurial treatment, with the result that 33.3 per cent. became negative, while 66.7 per cent. remained positive. In a second series of twenty-five patients, each given four injections of salvarsan, together with intensive mercurial treatment, 64 per cent. were made negative, while 36 per cent. remained positive. In other words, salvarsan produced double the number of negative reactions obtained with neosalvarsan. On these findings, they recommended the discontinuance of neosalvarsan and the exclusive use of salvarsan. On the other hand, in a recent study, Trimble and Rothwell[17] report a larger percentage of negative reactions with neosalvarsan than with salvarsan. In both instances, their proportion of negative reactions was very small. They conclude that neosalvarsan is superior to salvarsan, easier of administration, less likely to cause severe reactions, and produces a greater number of negative Wassermanns.

In the discussion which followed the reading of the latter paper, Schamberg stated that, basing his opinion on clinical observations, together with the use of the two drugs, salvarsan and neosalvarsan, in experimental trypanosomiasis, he believes that salvarsan is distinctly superior to neosalvarsan. Capelli,[18] as a result of experiments in rabbits, concludes that the antisyphilitic effect of salvarsan compared with neosalvarsan is as 5:4.

In our own work we have not made a careful comparison of results in any specified number of cases. It has been our impression that salvarsan was ultimately more efficient than neosalvarsan. In view of all the conflicting reports and opinions, it appears that the situation is as follows: Clinically, there is very little difference in the results between the two preparations; serologically, salvarsan appears more efficient. In other respects, salvarsan is more difficult to give, and it is followed more frequently by reactions; neosalvarsan is more convenient, requires much less care, and is accompanied by fewer reactions. Taking into consideration the advantages and disadvantages of each, it appears that for general use either can be properly recommended.

SUMMARY

Salvarsan and neosalvarsan are the most efficient drugs yet discovered in the treatment of syphilis. Alone they have completely eradicated the infection in early cases before the Wassermann reaction has become positive. The large number of reinfections testify to this fact. Yet even in these cases mercury is recommended as an adjunct.

In all other cases, mercury should always be an accompaniment of salvarsan, and in many cases potassium iodid is indicated, especially in the so-called tertiary and latent cases and in those involving the nervous system. The ability of potassium iodid to remove infiltrations, gummas and nodules, together with its marked effect on vascular implications, renders its use imperative.

The major number of reactions following the use of salvarsan and neosalvarsan are insignificant. The

12. Nicolas and Moutot: Ann. de dermat. et de syph., July, 1914.
13. Goubeau: Bull. de dermat. et de syph., March, 1914.
14. Fordyce: Tr. Am. Phys. and Surg., 1916, **10**, 1.
15. Whitehouse and Clarke: Jour. Cutan. Dis., 1913, **31**, 633.
16. Nelson, Kent, and Haines, E. F.: Observations of the Results of Seven Months' Experience with Salvarsan in the Treatment of Syphilis, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2277.
17. Trimble, W. B., and Rothwell, J. J.: A Comparative Study of Salvarsan and Neosalvarsan in the Treatment of Syphilis, THE JOURNAL A. M. A., Dec. 30, 1916, p. 1984.
18. Capelli: Dermat. Wchnschr., 1915, **61**, 907.

more serious ones are to be avoided, so far as possible, by an initial small dose to test the tolerance of the patient, by careful attention to details in administrative technic, by recognizing contraindications, and, in the case of early, active syphilis, preceding the salvarsan treatment with mercury, to prevent neurorecurrences; and finally, by giving sufficient treatment to control the disease. Emphasis must be laid on the latter statement, as much harm may be done by its apparent effect, the degree of relief placing the patient in a position of false security; therefore, sufficient treatment is demanded to prevent recurrences and relapses.

Many of the earlier cases, following insufficient treatment, of rapid onset of symptoms which ordinarily come late in the disease, such as nervous involvement and precocious tertiary manifestations, were eradicated by more salvarsan, and now should be entirely avoided by treatment of sufficient intensity and amount to control the disorder.

The treatment of syphilis with salvarsan and neosalvarsan has caused an intensive study over the entire world of the question of efficient management of the disease, to such a degree that great lessons have been learned and much good accomplished. Their ultimate value will require many more years to determine.

As to a choice between the two drugs, salvarsan and neosalvarsan, the extensive use of both proclaims their efficiency, so that individual circumstances with the physician and patient must decide which, under the circumstances, is to be selected. The apparent preponderance of opinion that salvarsan is more efficient is offset to a degree by the difficulties of its administration and the more frequent reactions following its use.

The problem of reducing toxicity to a minimum rests with the producers of the drug.

Concerning the dangers following the individual injections, many warnings have been given to exercise care after the fourth injection. The warning has not been accompanied by tabulated results showing proof of this contention. On the other hand, the statistics now available show that the major portion of severe reactions, untoward results and fatalities have followed the first injection, and that with subsequent injections these results were greatly decreased.

CONCLUSIONS

The efficiency of salvarsan and neosalvarsan is of such a high order, and the limitations are so comparatively few that they will probably hold an important place in the future treatment of syphilis. The clinical results are striking, and in addition their effect serologically is such that the question of their abandonment can be conceived only by the discovery of a more potent remedial agent.

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Seventh Sense.—Aristotle and his contemporaries were accustomed to distinguish five special senses, namely, sight, hearing, smell, taste and touch. To these physiologists have added several, the muscular sense, the heat sense, etc., which may be comprehended as a sixth; and N. D. Mackay (*Med. Press and Circular*, 1916, **102**, 491) adds still another—the saving seventh—the extra special sense of humor, without which existence is as salt which has lost its saltness, and without which the events of life present to the unfortunate who lacks it a picture tame and insipid, drear and cold as the picture presented by Nature to the photographic vision of the totally color blind.

THE LEUKOTOXIC FACTOR IN LYMPHATIC LEUKEMIA

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The earliest stage of leukemia is unknown. Cases are not uncommon in which an aleukemic blood picture (that is, one showing no increase in the total number of leukocytes but a relative increase in the lymphocytes) has later developed into a typical lymphatic leukemia. Not only this, but there is so close a resemblance between the blood picture and pathologic lesions of aplastic anemia and those of aleukemic (sublymphemic) leukemia, that there is a fair suspicion that the two diseases have some sort of pathogenic relationship.

In aplastic anemia one of the striking features is the great diminution of the granulated leukocytes in the circulation. Within the last few years our understanding of the probable pathogenesis of this has been greatly increased by Selling's studies on benzol poisoning. Benzol (benzene, C_6H_6) is an agent which destroys circulating polymorphonuclear leukocytes as well as the leukoblastic tissue of the bone marrow, and also injures but does not so readily destroy the lymphoblastic tissue. It seems probable that the agent which is at work in aplastic anemia acts in a somewhat similar way. Many workers have recognized that in all types of leukemia there is not only an overproduction, but also a greatly accelerated destruction of leukocytes. It seems probable that in the aleukemic or sublymphemic cases the same factors, productive and destructive, are at work, but that the destructive process exceeds cell reproduction. Changes in the relative rate of leukocyte production and destruction explain the transition from the aleukemic to the leukemic blood picture, as well as the reverse, which also sometimes occurs.

We have recently studied a case of aleukemic leukemia which finally developed into a typical chronic lymphatic leukemia. During the leukemic stage a large blood transfusion was performed. The interesting point to which we wish to draw attention is that in spite of the fact that a great number of granular leukocytes were transfused to the patient, these leukocytes had entirely disappeared from his circulation twenty-four hours after the transfusion. That this rapid disappearance of leukocytes is not the exception but the rule after transfusions in lymphatic leukemia, one of us can testify from observation in several similar cases.

There are two possible explanations of this phenomenon. Either the leukocytes were removed from the circulation and held in some internal organs, or they were destroyed. Which of these two possible explanations is the correct one can be settled only by extensive postmortem study. But from the fact that in cases of lymphatic leukemia in which there is almost a disappearance of polymorphonuclear leukocytes from the circulation, one does not find polymorphonuclears in any large numbers in the tissues or organs, it seems far more probable that the transfused leukocytes were very rapidly destroyed in the present case. In the case to which we are now referring, the patient was a young child, weighing 53 pounds, and the amount of blood transfused, 250 c.c., was esti-

mated to represent about a quarter as much as the patient's own blood volume. It appears, therefore, that there must have been some toxic agent present capable of destroying within twenty-four hours approximately a quarter as many leukocytes as the child normally should have had in the circulation.

The history of the case is briefly as follows:

J. F., boy, aged 3 years, was seen, Aug 21, 1916. The family history and the child's previous history are unessential. He had been ill for several months with fever and increasing pallor and weakness. He showed numerous large, hard, discrete lymph nodes on each side of the neck, and somewhat smaller lymph nodes in the groins and axillae. The spleen was four finger breadths below the free border of the ribs. There was a loud systolic murmur over the entire precordium, a pulse ranging from 120 to 140, extreme pallor, with petechiae on the trunk, and hemorrhagic spots in the skin of the legs. The temperature at the first examination was 103.6 F. The blood count showed a grave anemia with less than the normal number of leukocytes. The differential count showed a predominance of small lymphocytes, with a small number of large lymphocytes and so small a number of polymorphonuclear cells that one could almost speak of the absence of the polymorphonuclear cells from the blood. The leukocyte count continued subnormal for two and a half weeks, and then abruptly within five days rose from 4,200 per cubic millimeter to 60,000, and eleven days later to 160,000 (as indicated in the accompanying table of blood counts). During this period the treatment consisted of arsenic and four intragluteal injections of 20 c.c. of whole blood obtained from the child's father. The condition of the patient slowly grew worse. He continued to have high irregular fever and developed some edema of the face and extremities. September 24, a transfusion of 250 c.c. of blood by the syringe method (Unger apparatus) was performed. Aside from an improvement in color, the general condition of the patient was not materially affected by the transfusion. On the following day the number of red cells was increased from 1,260,000 to 2,045,000. The total number of leukocytes in the circulating blood had dropped from 160,000 the day before transfusion to 49,000 on the day after. Unfortunately no blood count was made immediately after the transfusion, but the blood count made twenty-four hours after it showed a complete disappearance of the polymorphonuclear cells which had undoubtedly been transfused and which must have been in the circulation immediately after the transfusion. It was necessary to count 400 leukocytes in order to find one polymorphonuclear cell. The child lived only six days after the transfusion. The febrile and toxic symptoms continued unabated. The day before his death he developed a subicteric appearance.

BLOOD COUNTS

Date	Hemoglobin per Cent.	Red Blood Cells	White Blood Cells	Polymorphonuclears, per Cent.	Large Lymphocytes, per Cent.	Small Lymphocytes, per Cent.	Eosinophils, per Cent.	Basophils, per Cent.	Myelocytes, per Cent.
August 21....	..	1,400,000	4,200	0	91	9	..	....	....
August 25....	..	2,080,000	2,800	3	87	10	..	....	....
August 28....	15	1,280,000	2,200	1	95	4	..	....	....
August 30, injection of 20 c.c.									
September 5..	25	1,120,000	1,500	2	94	4	..	....	....
September 6, injection									
September 6..	32	2,040,000	4,200	14	64	22	..	....	....
September 11.	28	1,280,000	60,000	7	80	12	1	....	....
September 11, injection									
September 24.	25	1,260,000	160,000	0.75	99	..	..	0.25	0.25
September 24, transfusion									
September 25.	..	2,045,000	49,000	0.25	99.5	..	..	0.25	....

That this destruction of leukocytes was not due to any destruction of the transfused blood as a whole was shown by the absence of icterus or hemoglobinuria after the transfusion, and by the pronounced rise in the total number of red cells on the day after transfusion, as well as by the fact that before transfusion very careful tests were made to preclude hemolysis or agglutination between the blood of the donor and that of the patient.

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THE MEDICAL CORPS OF THE ARMY AS A CAREER

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To the young men of the profession, who are serving their internship and planning for their future, the Medical Corps of the Army as a career presents itself. Many give this service little consideration, because they lack information as to what the corps is and what it has to offer, or because of a misconception of the duties and functions of the medical officer.

Even those who are better informed, and are seriously considering the army as a life work, have little real information as to the duties of the medical officer; the question of pay and allowances is but vaguely understood, and even less known as to what is offered from a strictly professional point of view.

An applicant naturally asks: "What are the duties of the medical officer? What opportunities are offered, and is there encouragement to specialize? What are the requirements for admission?"

In the first place, one must bear in mind that the medical officer is not only a physician, but in addition he is a soldier and an integral part of a highly organized body. Hence he has to coordinate himself and his duties with the whole in order that the organization may work smoothly, as it is on the medical officer that the commanding officer depends for the efficient administration of the sanitary service, the health of the troops, the care of the sick, and the prompt return of the physically fit to their organizations.

THE MEDICAL OFFICER AS A SPECIALIST

The medical officer is a specialist, trained for certain specific duties, aside from the care of the sick, which do not fall to the lot of the civil practitioner. He is an administrator, a sanitarian, and cares for the sick and injured. In the case of the sick and injured the medical officer has a twofold responsibility: the protection of the interests of the government, and justice to the individual.

The primary duty of the medical officer is that of a sanitarian. He must safeguard the health of the command by familiarizing himself with the health conditions of surrounding territory, and take measures to prevent the introduction of epidemic diseases into the camp or garrison. Should an epidemic occur he must make early diagnosis of the disease, institute such measures as will limit its spread, care for those sick, isolate contacts, and eliminate carriers; all of which requires sound judgment, common sense, and quick decision.

The history of the medical service of the army is rich in examples of the distinguished work of its individual officers. Their work as sanitarians in Cuba,

Porto Rico, the Philippines and Panama forms a brilliant page in the history of preventive medicine. One has only to read medical literature for the past eighteen years to be familiar with their accomplishments.

The work of the corps as a whole is shown in the remarkably low morbidity and mortality rates among the troops recently and now on the border, both regular troops and those in the national guard. To perceive its value, the death rate of the Spanish-American War should be contrasted with the conditions in Texas since 1911. A concrete example of the former was the unhappy condition of the division of volunteers at Jacksonville, Fla., in 1898. There 10,759 men, within four months, had 248 deaths from typhoid fever and 281 deaths from other illness, a total of 529, equivalent to an annual death rate of 147.4 per thousand; of this total, 78.3 per thousand were due to diseases other than typhoid. Against this, the division of regular troops which was encamped at San Antonio, Texas, in 1911, for the same length of time, had no deaths from typhoid fever, and but eleven deaths from other diseases, equivalent to an annual death rate of 2.58 per thousand per annum, and a death rate for diseases other than typhoid fever of less than one thirtieth of that among the volunteers at Jacksonville, Fla., in 1898. The comparison illustrates the work of the military specialist as against that of the practitioner untrained in the special duties of the medical officer.

Troops have for the last five years been on the border under field conditions with a sick rate less than the average garrison rate. Since June the national guard has been encamped on the border under conditions similar to the regular service. Although many of the officers and enlisted men of the national guard were untrained in sanitation, army methods were enforced by army sanitarians from the time of their arrival. The result is shown in the low sick rate, averaging less than 30 per thousand for all troops, about 150,000 with only 166 deaths from disease in seven months; a (total death) rate of 1.9 per thousand per annum against a death rate from sickness in 1898 of 28.18 per thousand per annum. Such results can be accomplished only by specializing, by creating a medical corps which will be the great conserving agency of the army in peace or in war.

In civil life, the practitioner, unless possessing ample means, specializes only after some years of general practice. In the army he begins to specialize while a student candidate for commission; for it is at the Army Medical School that the special duties of the medical officer as differing from practice in civil life are taught. Later, after qualifying for the corps and receiving a commission, the medical officer is encouraged to specialize in one of the several branches of the profession, just as does the practitioner in civil life.

REQUIREMENTS

An applicant for a commission in the Medical Corps of the Army must be a graduate of a reputable medical school, must have served one year (postgraduate) as a resident intern in a hospital, and must be of good moral character, physically sound, and between the ages of 22 and 32 at the time he receives his commission. He is required to submit an application in his own handwriting, accompanied by two letters or testimonials, and evidence that he is a graduate of a medical school, that he is within the age limit, and that he has served the required internship.

Twice a year or oftener, boards for the supervision of the preliminary examinations are appointed, and these boards, meeting on a specified date and hour, hold sessions in various parts of the United States and its dependencies. The examination is physical and professional. After the physical examination comes the written examination. In this a day is given to major subjects and a half day to minor subjects. As these boards are merely for the purpose of conducting the physical examinations and supervising the written examinations, the reports of the physical examinations and the papers of the various candidates are sealed and sent to the surgeon-general of the army, who in turn forwards them with the testimonials of the applicants to the central examining board, appointed by the secretary of war, usually from the faculty of the Army Medical School. The papers are graded by the individual members of the central board and the markings later reviewed by the full board. The successful candidates are reported to the surgeon-general, who submits recommendations to the adjutant-general of the army that they be commissioned as first lieutenants in the reserve corps, in order that all candidates for the corps may have an official status while attending the Army Medical School. If the examination is in January, the successful applicants are commissioned at once and when practicable ordered to active duty at a post or in the field until the opening of the Army Medical School, October 1.[1]

THE ARMY MEDICAL SCHOOL

Attendance at the school and graduation therefrom are prerequisites for a commission. The course is both undergraduate and postgraduate — postgraduate in the sense that the laboratory courses are of the highest order, on a plane far above that taught at the average medical school. No similar advanced course is offered elsewhere, except in postgraduate schools to applicants for higher degrees. The school is under the command of a colonel of the medical corps, who is assisted by a faculty of medical officers. The course includes military medicine and surgery, sanitary chemistry, camp sanitation, the hygiene of the soldier, sanitary tactics, bacteriology, pathology, operative surgery, clinical medicine, ophthalmology, roentgenology, the duties of the medical officer, administration, the customs of the service, military law and equitation. The discipline of the school is strict, the requirements high and the work hard. The midterm examinations practically settle the future of the student. If he holds up to the standard after passing these examinations, he is almost sure of his commission; but should he fail at the midterm examination, he is relieved from duty at the school and ordered to his home.

The final examinations are held in May, and diplomas awarded to those who graduate. Commissions are issued to graduate candidates who obtain more than the minimum passing mark, and who are physically qualified for the service.

Even should a candidate fail to obtain a commission, he has received a course of instruction which cannot be duplicated in civil life. He attends school as an officer of the reserve corps, with the pay and allowances of the grade, equaling about $200 per month, and mile-

1. Owing to the shortage of medical officers, the school years 1916-1917 and 1917-1918 will be divided. The school will open July 1, and Oct. 1, 1917, and March 1, 1918. Candidates who qualify at this time would enter the school, July 1, and receive their commissions in October, saving almost one year in their service.
There are at present 230 vacancies in the corps, with less than 100 qualified applicants. July 1, there will be an additional 222 vacancies.

age to and from his home, the government in addition paying for the transportation of his household goods up to 5,100 pounds. This is the material side. From the professional side he has the advantage of work for eight months, in laboratories and wards equipped with the best and most modern apparatus, under instructors who are themselves specialists in the various branches of their profession. The foundation for a specialty is laid in the school — whether it be in internal medicine, surgery, bacteriology and pathology, roentgenology, ophthalmology, sanitation or any other branch of medicine.

The school also provides postgraduate instruction to commissioned medical officers, who in such numbers as can be spared from other duties are ordered to the school for four months each year for special work.

PRACTICAL DUTIES

The newly commissioned medical officer is first assigned to post or field duty in the United States, where he must apply the theory learned at the Army Medical School. He later takes his tour of foreign service, either in Alaska or the Philippine Islands for two years, or in the Canal Zone, Hawaiian Islands, or Porto Rico for three years. The foreign service roster is fixed for each grade, and an officer takes his tour of service when his name is reached on the list. On foreign service the routine duties are the same as at home, but each officer is expected, so far as his ability permits, to take up the study of the diseases peculiar to the locality in which he is stationed.

In addition to the facilities for study in the medical department, the medical officer thus is assured of travel in foreign lands, with its attendant opportunities to observe the peoples thereof and their customs. While on duty in the Philippine Islands, leave of absence can readily be obtained, when service conditions permit, for the purpose of visiting Australia, the East Indies, China or Japan; and at the end of his tour authority (in time of peace) to return to the United States via the Suez Canal or Siberia. If on duty in Porto Rico or the Canal Zone, similar privileges are available to visit South America, with which there is direct communication by steamship.

The medical department takes a paternal interest in its officers, and encourages the ambitious and studious by supplying equipment of operating rooms, Roentgen-ray and research laboratories, etc. New publications are sent to posts and general hospitals; periodicals are supplied, and special books are furnished on requisition. In fact, the department aids and encourages the personnel of the corps in every way so far as the interests of the service will permit.

LEAVES, POSTGRADUATE STUDY AND RESEARCH WORK

Leaves for study are granted to officers when possible. Prior to promotion, captains are assigned for one year to medical centers for the purpose of study and research. Officers so assigned are expected to attend clinics, take courses at a postgraduate school, and to specialize in some branch of the profession. Reciprocal arrangements have been made with certain medical schools and foundations for special privileges to medical officers on condition that medical officers give instruction in military medicine, hygiene and the duties of the medical officer. Officers selected for these assignments enjoy opportunities which come to few of the profession in civil life.

Research into the causes of disease as well as in prevention has in the army reached a high plane. Original work, and the systematic study of all conditions affecting the health of the army are encouraged. The former difficulty in carrying on systematic research due to frequent interruptions occasioned by strict adherence to the foreign service roster is now corrected by the organization of the research division; and, in the future, results as important to the medical world as those contributed in the past by the corps are confidently expected. The establishment of this division is one of the most important advances in medical department administration made in many years, as it will enable the department to utilize to the fullest extent the trained laboratory workers in the corps.

Twenty-four officers have been assigned to this division. This number will be increased as the work expands and the necessity arises.

PROMOTIONS AND PAY

In passing through the various grades from first lieutenant to colonel, examinations are required. Should a lieutenant or captain fail in examination, he is honorably discharged with one year's pay. Should a major or lieutenant-colonel fail in examination for promotion, he is suspended from promotion for one year, is then reexamined, and, should he fail the second time, is placed on the retired list.

The pay of the medical officer may be compared to that of a full-time instructor or professor in a medical school. The first lieutenant receives $2,000 a year in addition to allowance for quarters, fuel and light. The basic pay of captain (a grade attained after five years' service) is $2,400 a year, with 10 per cent. increase for each five years' service up to twenty years. This gives a 40 per cent. increase, or a maximum pay of $3,360 a year, with allowance of quarters, fuel and light. The pay of a major is limited to $4,000, lieutenant-colonel to $4,500, and a colonel to $5,000 a year, with quarters, fuel and light. The law also provides for retirement on three quarters of the pay of the grade for disability at any time in line of duty, or for age at 64. The earnings are less, perhaps, than those of men of equal ability in civil life, "but the position is one of dignity, opportunity and service to one's country."

ADVANTAGES OF THE SERVICE

Never since the establishment of the medical department by Congress have the opportunities been so great, never has the medical corps been on a better footing, and never have the officers of the corps been encouraged to work along independent lines and to specialize as now. Socially there is the association with the highly educated, thoughtful and purposeful men and women of the service, the absence of the social jealousies often encountered in civil life, the assurance of a home, and a competence during life.

In the medical corps, as in civil life, there is opportunity to promote the progress of medicine and to achieve individual distinction. As in civil life, the advantage to be taken of this opportunity depends on the individual, the real difference being that in the army there is a constant incentive for duty, if not from individual ambition, at least by pressure from higher authority, although the officer who requires constant pressure from higher authority does not last. It is the professionally fit who succeed in the army as elsewhere, the men who require no incentive other than their own ambition.

ALKALINE TREATMENT OF EARLY GALL-BLADDER CARRIERS

WITH OBSERVATIONS ON THEIR DETECTION BY AID OF THE DUODENAL TUBE *

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Gallbladder carriers include carriers of the typhoid group, cholera carriers and probably also bacillary dysentery carriers. I have called attention[1] to the problem of the pathogenesis of gallbladder lesions in these diseases, and have emphasized the mechanism of descending infection of the bile from the liver. It was shown by means of the common duct fistula method in rabbits that more typhoid bacilli appear in the bile with larger intravenous doses; that more bacilli appear after mesenteric than after ear vein injections; that more bacilli appear in immunized animals than in normal animals, and that more actual gallbladder infections occur under these conditions, which favor the presence of micro-organisms in the bile, than otherwise.

The mechanism of infection in the case of typhoid, cholera and dysentery organisms seems, therefore, to be different from that in case of the streptococci which, as has recently been shown by Rosenow,[2] seem to infect first the gallbladder wall by means of emboli. This difference in the action of the two groups of micro-organisms is recorded in the tissues. In experimental typhoid gallbladder lesions in the rabbit, section of the gallbladder wall shows an infiltration with round cells only immediately underneath the mucous membrane where the influence of the infected bile is first exerted. No foci of infection are found in the wall of the bladder, and no peritonitis is present. The bladder is often ballooned out with a very thin transparent wall. In the case of the streptococci, distinct evidence of embolic infection is present in the muscle wall and peritoneal covering of the gallbladder.[2] The explanation of this difference is apparently to be found in the selective effect of the bile as a culture medium. The bile capillaries are separated from the blood stream of the intralobular veins by less than one half of the width of a liver cell, and we have experimental evidence that, in any marked septicemia, micro-organisms easily pass this barrier. Once in the biliary system, they are of course subject to the action of the bile.

In the case of the streptococci, whose growth is not favored by this medium, it appears that they are simply washed through the bile passages or die off in them; if an infection of the gallbladder is to occur, it must start in the gallbladder wall. The other organisms mentioned, however, can first multiply in the bile and then secondarily invade the gallbladder wall.

Under these circumstances it is indicated to direct early therapeutic efforts to the bile rather than to the blood or tissues. In the experimental work referred to, I found that, while human bile and ox bile generally favor the growth of typhoid bacilli, rabbit and guinea-pig bile kill off all bacilli in twenty-four hours. This effect was first noted with bile from a common duct fistula. It is not so definite, especially in case of the rabbit, with bile from the gallbladder, which is less alkaline and contains more solids than bile directly from the liver. This antiseptic action was found to be due largely to the alkalinity of the bile, because it disappears on neutralization. This finding suggested that alkaline treatment might be of value in the treatment especially of incipient carriers. The reaction of the bile can be influenced by the administration of alkalies. It was found that sodium bicarbonate injected intravenously made rabbit bile more alkaline. In man the same thing is apparently true, as evidenced by the following experiment: The duodenal contents of a normal per on were titrated with a result that 5.4 c.c. of normal sodium hydroxid were required to neutralize 100 c.c. to phenolphthalein. The subject was then put on a daily dose of 6 gm. of sodium bicarbonate; at the end of a week, the duodenal contents were again titrated, and only 1.2 c.c. of normal sodium hydroxid were required to neutralize 100 c.c. The urine became neutral on the fourth day. Such tests should preferably be made in cases of biliary fistula, because in the duodenum the bile may be mixed with gastric and pancreatic fluid; but it seems reasonable that the result would be qualitatively the same. In the work on anes-

TABLE 1.—RESULTS OF EXAMINATION OF DUODENAL CONTENTS IN TEN CASES OF RECENT RECOVERY FROM TYPHOID

No. *	Diagnosis by	Temperature Normal, Weeks	Time of Collection, Hours	Amount, C.c.	Color	Appearance	Consistence	Reaction to Litmus	Microscopic Examination	Culture for Typhoid Bacilli	Stools and Urine	Time Since Typhoid Prophylaxis
1	Blood culture.	2	4	About 10	Greenish-yellow.	Turbid.	Mucoid.	Neutral.....	Amorphous sediment	(—)	(—) (—)	2 years
2	Agglutination	2	5	10	Greenish-yellow.	Turbid.	Mucoid.	Slightly acid.	Amorphous sediment	(—)	(—) (—)	No prophylaxis
3	Agglutination	3	4	10	Greenish-yellow.	Clear...	Mucoid.	Slightly alkaline	Amorphous sediment	(—)	(—) (—)	5 years
4	Blood culture.	2	4	10	Greenish-yellow.	Turbid.	Liquid..	Neutral.....	Cholesterin crystals; bacilli	(—)	(—) (—)	1 month
5	Blood culture.	2	5	10	Greenish-yellow.	Turbid.	Mucoid.	Neutral.....	Débris; mucous yeasts; cocci	(—)	(—) (—)	2 years
6	Blood culture.	1	5	10	Greenish-yellow.	Turbid.	Mucoid.	Slightly alkaline	Yeasts; amorphous débris	(—)	(—) (—)	2 years
7	Blood culture.	1	4½	10	Greenish-yellow.	Clear...	Mucoid.	Slightly alkaline	Bacilli; amorphous débris	(—) Colon (+)	(—) (—)	5 months
8	Bile culture....	†	4	10	Greenish-yellow.	Turbid.	Mucoid.	Neutral.....	Yeasts; débris.	(+) Typhoid	(—)‡ (—)¶	3 months
9	Blood culture.	2	5	10	Greenish-yellow.	Turbid.	Mucoid.	Slightly alkaline	Yeasts; amorphous débris	(—)	(—) (—)	3 months
10	Blood culture.	3	5	10	Yellow.....	Turbid.	Mucoid.	Neutral; 1.4% acid to phth.	Bacilli; amorphous débris	(—) Colon (+)	(—) (—)	3 months

* Regulars, Nos. 1, 2, 3, 8; militiamen, Nos. 4, 5, 6, 7, 9, 10. † Five days, then relapse. ‡ Urine, once. ¶ Feces, six times.

* From the Laboratory Service of the U. S. Army Letterman General Hospital, San Francisco, and Southern Department Laboratory No. 2, El Paso, Texas.

1. Nichols, H. J.: Jour. Exper. Med., 1916, **24**, 497.
2. Rosenow, E. C.: Jour. Infect. Dis., 1916, **14**, 527.

thetics recently reported by Crile,[3] the reaction of the bile was influenced by changes in the alkalinity of the blood.

THE DETECTION OF GALLBLADDER CARRIERS BY AID OF THE DUODENAL TUBE

The subject of the treatment of carriers naturally brings up the subject of their detection. While much advance has been made by the examination of feces, I believe that the examination of the duodenal contents marks an advance over any enrichment mediums for the feces. A report on the value of the use of the duodenal tube in general diseases of the gallbladder has recently been made by Einhorn,[4] and in the detection of typhoid carriers by Garbat.[5] As a result of the experimental work referred to, I was especially impressed with the possibilities of the method advocated in these articles. The various new mediums which are still being devised[6] for the detection of typhoid bacilli in the feces show that this method is not altogether satisfactory, and a concrete example is found in the fact brought out by Garbat's cases, and also by my own, that the duodenal contents of early carriers may contain typhoid and paratyphoid bacilli while repeated examination of the feces fails to reveal them.

As will be seen in Tables 1 and 2, I have used this new method in twenty cases with two positive results. All were soldiers of the regular army or militia at the Letterman Hospital, March, 1916 (one), and at Base Hospital No. 2, September-December, 1916 (nineteen). Garbat passed an Einhorn tube overnight, but suggests that the time could be shortened by use of a gravity tube. We have used the Einhorn tube successfully in a shorter time, and also use selective mediums for cultivation.

Technic. — A regular breakfast is allowed at 7 o'clock; in about two hours the metallic sinker is chilled in ice water and is put in the mouth with the patient sitting up in bed, and a small drink of water is given; as soon as the patient swallows the sinker he lies down on the right side and waits for the tube to descend to the duodenum (third mark). On an average, a wait of about four or five hours was necessary. At the end of three hours, Dr. Artaud, of the Medical Reserve Corps, "primes" the tube by aspiration with a syringe, which usually produces a small amount of whitish mucus, acid to litmus. This procedure often establishes a siphon, and in another hour yellowish-green fluid, neutral or alkaline to litmus, may be dropping out of the tube. Further suction gives from 10 to 20 c.c. of genuine duodenal contents. If the contents are still acid, a further wait is necessary, and rarely another trial on another day must be made. No special hardship is involved, and one patient took the tube four times. Altogether twenty-eight successful attempts were made out of thirty-two trials on twenty-five patients. Endo plates are inoculated as soon as possible, one with the straight fluid and one with the centrifugate. Another portion is put in brilliant green peptone water, 1: 20,000, and plated on Endo's medium after twenty-four hours' incubation. The centrifugate is also examined microscopically for organisms, crystals and cells. In one case many active *Lambliae intestinales* were recovered, while the stool showed only a few cysts.

TABLE 2.—RESULTS OF EXAMINATION OF DUODENAL CONTENTS OF TEN CASES OF RECENT RECOVERY FROM PARATYPHOID.*

No.	Paratyphoid A Diagnosis by	Temperature Normal, Weeks	Time of Collection, Hours	Amount, C.c.	Color	Appearance	Consistence	Reaction to Litmus	Microscopic Examination of Sediment	Culture for Paratyphoid Group	Stool and Urine	
				About								
1	Blood culture.	2	5	10	Yellowish-green.	Turbid.	Liquid.	Neutral.....	Bacilli; débris..	(—) Colon (+)	(—)	(—)
2	Blood culture.	2	4	10	Yellowish-green.	Clear...	Mucoid.	Neutral.....	Bacilli; yeasts; débris	(—) Colon (+)	(—)	(—)
3	Blood culture.	2	4	10	Yellowish-green.	Turbid.	Mucoid.	Neutral.....	Débris; crystals.	(—)	(—)	(—)
4	Blood culture.	1	5	10	Yellowish-green.	Turbid.	Mucoid.	Neutral.....	Débris; crystals; bacilli	(—) Colon (+)	(—)	(—)
5	Bile culture....	2	4	10	Yellowish-green.	Turbid.	Mucoid.	Slightly alkaline	Débris; cocci....	(+) Numerous colonies Paratyphoid A	(—) 8 times (+) once	
6	Agglutination	4	4	10	Yellowish-green.	Turbid.	Mucoid.	Neutral.....	Débris.....	(—)	(—)	(—)
7	Blood culture.	2	4	10	Yellowish-green.	Clear...	Mucoid.	Neutral.....	Débris.....	(—)	(—)	(—)
8	Blood culture.	1	4	10	Yellowish-green.	Turbid.	Mucoid.	Slightly alkaline	Débris.....	(—)	(—)	(—)
9	Blood culture.	2	4	10	Yellowish-green.	Clear...	Mucoid.	Slightly alkaline; 1.9% to phth.	Débris.....	(—)	(—)	(—)
10	Paratyphoid B; feces culture	1	5	10	Yellowish-green.	Turbid.	Mucoid.	Alkaline	Débris; cholesterin crystals; bacilli	(—) Colon (+)	(—)	(—)

* No paratyphoid prophylaxis in any case.

In general, the contents in all cases were much the same, consisting of a yellowish-green, mucoid, slightly turbid liquid, neutral or slightly alkaline to litmus. The specimen, therefore, differs from the thick brown fluid obtained from a biliary fistula, but the change in appearance is apparently due largely to dilution, which does not affect its suitability for culture. In the centrifugate, amorphous débris predominates, a few cholesterin crystals are occasionally seen, and also yeasts, cocci and motile bacilli, which culture shows are usually colon bacilli. The two positive cases showed no distinct macroscopic or microscopic evidences of infection, although carriers of longer standing would probably show some pus cells.

It so happened that, in the two positive cases, examination of the duodenal contents also furnished a diagnosis which could not have been made otherwise with certainty. Both patients were admitted late in their fevers, blood cultures and stool culture were negative, and agglutinations did not furnish much information, as the patients had both been vaccinated with typhoid vaccine and gave a good reaction for typhoid while paratyphoid A agglutinations are weak even in infected

3. Crile, G. W.: An Experimental Research into the Nature of Nitrous Oxid and of Ether Anesthesia, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1830.

4. Einhorn, MAX: The Duodenal Tube as a Factor in the Diagnosis and Treatment of Gallbladder Disease, THE JOURNAL A. M. A., June 17, 1916, p. 1908.

5. Garbat, A. L.: Duodenal Cultures in Typhoid Fever as a Means of Determining Complete Convalescence, THE JOURNAL A. M. A., Nov. 18, 1916, p. 1493.

6. Teague and Clurman: Jour. Infect. Dis., 1916, 18, 647, 653.

persons. In one case paratyphoid A bacilli were found in considerable numbers, and, in the other, typhoid bacilli. The latter patient soon developed a typical typhoid relapse.

ALKALINE TREATMENT

Case 1.—*Paratyphoid A carrier.*—Truck driver, aged 26, Quartermaster Corps, was admitted to Base Hospital No. 2, El Paso, Texas, Oct. 10, 1916, with a temperature of 103 and a history of fifteen days' fever in Mexico. Blood culture and feces culture were negative, October 11. Typhoid prophylaxis had been given in 1911 and 1914. The temperature became normal, October 14. October 30, duodenal contents were obtained and a large number of suspicious colonies were found on the Endo plates which proved to be those of Paratyphoid A bacilli. The contents were slightly alkaline.

TABLE 3.—WIDAL TESTS IN CASE 1

		Agglutinations				
		1:40	1:80	1:160	1:320	1:640
October 18	Ty.	(++)	(+)	(+)	(+−)	(−)
	A.	(+−)	(−)	(−)	(−)	(−)
	B.	(−)	(−)	(−)	(−)	(−)
October 27	Ty.	(++)	(+)	(+)	(+−)	(−)
	A.	(−)	(−)	(−)	(−)	(−)
	B.	(−)	(−)	(−)	(−)	(−)
November 3	Ty.	(++)	(++)	(+)	(+−)	(−)
	A.	(+−)	(−)	(−)	(−)	(−)
	B.	(−)	(−)	(−)	(−)	(−)

The patient was put on 2 gm. of sodium bicarbonate, three times a day, for ten days. The urine became alkaline in three days. Second examination of the duodenal contents was negative, November 14. The bile was definitely alkaline to litmus. The feces examination was negative eight times during the treatment, and was strongly positive once. The urine was negative twice.

Case 2.—*Typhoid carrier.*—A militiaman, aged 20, was admitted, November 3, with a temperature of 104 and a history of fever for one week. Blood cultures and stool culture were negative, November 4 and 5. Typhoid prophylaxis had been given in July, 1916. The temperature was normal, November 13. November 15, a duodenal tube was passed, and the contents showed typhoid bacilli in a brilliant green sample; the direct plate was accidentally dropped and lost. The contents were neutral. There was a relapse from November 18 to December 10. Sodium bicarbonate, 2 gm., three times a day, was given, November 19-28. Second bile test, December 21, was negative. The feces examination was negative six times, and the urine negative once.

In brief, both these early carriers were negative on a second examination of duodenal contents after a course of sodium bicarbonate. They may have been simply temporary carriers and might have cleared up of themselves, as did Garbat's and Berry's[7] patients. On the other hand, they might have become permanent carriers. In the paratyphoid A case a suggestive finding occurred: the stools were negative except on one examination, which showed a large number of colonies. This result may have been in the nature of a "provocative" reaction due to washing out of a plug of infected mucus.

COMMENT

The superiority of examination of duodenal contents over that of the feces for the detection of carriers is, of course, to be expected theoretically and seems to be strongly indicated by the few cases so far examined. Whether the bacilli are constantly or only intermittently present in the duodenal contents of a carrier will have to be determined by further work; the chances favor the former possibility; but if bacilli are only intermittently discharged, the gallbladder may be stimulated to contract during the examination by a preliminary meal, as suggested by Garbat.

The number of permanent carriers of typhoid bacilli is usually put at about 3 per cent. of cases, while temporary carriers run much higher, depending on the time of examination. Examination of the duodenal contents may increase the percentages for both kinds of carriers, but especially for temporary carriers. In this connection a practical point is the proper time after recovery for examination, because the bile always contains typhoid group bacilli at some period of the disease. Probably at least a month should pass after the temperature is normal before the test is made, in order to avoid picking up the purely temporary carriers which clear up of themselves.

The importance of the detection of carriers of the typhoid group has been generally recognized in our military service, especially since the work of Russell on the typhoid problem in the army, and two negative feces and urine examinations are required before discharge. In civil life, as shown by Garbat, the same is hardly true as yet, and the traditional view that welfare of the individual patient is the end-all of the physician's duty still has force. In the service and in public health work generally, in which a medical officer is charged with preserving the health of large numbers of persons, the more modern views of preventive medicine and social welfare are perhaps more in evidence. The individual, of course, must still remain the unit of attention, but many possible cases have claims as well as the one actual case. A concrete example is found in the possible spread of paratyphoid A infections as a result of the present mobilization. As we now know, this disease is far from rare in Mexico and on the border, and a number of cases have occurred in the troops, as will later be reported by medical officers. Fortunately the disease was promptly stopped by vaccination, and the convalescents have been examined for carriers;[7] but it should be recognized that these measures are distinctly recent and are due to modern broad conceptions of medical work.

TABLE 4.—WIDAL TESTS IN CASE 2

		Agglutinations				
		1:40	1:80	1:160	1:320	1:640
November 7	Ty.	(++)	(++)	(+)	(+−)	(−)
	A.	(−)	(−)	(−)	(−)	(−)
	B.	(−)	(−)	(−)	(−)	(−)
November 8	Ty.	(++)	(++)	(++)	(+)	(+−)
	A.	(−)	(−)	(−)	(−)	(−)
	B.	(−)	(−)	(−)	(−)	(−)
November 17	Ty.	(++)	(++)	(++)	(+)	(+−)
	A.	(−)	(−)	(−)	(−)	(−)
	B.	(−)	(−)	(−)	(−)	(−)

In regard to the alkaline treatment of early carriers, the work so far done is largely preliminary; only two cases have been treated, and they were not of a decisive character. The object of this article is to call attention to the importance of realizing the pathogenesis of the carrier condition and of appreciating the possibilities of early treatment through the bile. As in many other conditions, much more may be accomplished early than late. No opportunity has yet presented itself for the treatment of a chronic carrier, but the conditions here would seem to be more difficult. Vaccination seems to have cured some cases and in others surgical intervention has been tried successfully when vaccine failed. Again, removal of the gallbladder is not always success-

7. Berry, C. W.: Med. Rec., New York, 1917, **140**, 135.

ful, as the bile passages may be infected. The chances of curing a well established lesion by simple measures certainly do not seem as good as they may be in early lesions. The reasons for trying to cure early carriers through influencing the reaction of the bile are: The bile is first and always infected; it spontaneously frees itself from infection in most cases by its antiseptic action; the antiseptic action is largely dependent on its alkaline reaction, and the reaction of bile can be made more alkaline by appropriate means. In case of a combined gallbladder and urinary bladder carrier, the case would of course require separate lines of treatment, one alkaline and the other acid. Many other factors, such as the effect of the infection itself on the reaction of the bile,[8] the extent to which the reaction can be changed, and the amount of alkali required remain to be determined.

SUMMARY

1. The mechanism of gallbladder infection in the typhoid group, cholera and bacillary dysentery is by descending infection of the bile from the liver and not by emboli in the gallbladder wall.

2. Alkalinity of the bile favors its antiseptic action, and the reaction of the bile can be affected by the administration of alkalies.

3. The detection of early gallbladder carriers by examination of the duodenal contents is "a more reliable and simpler method" (Garbat) than examination of the feces.

4. Alkaline treatment is suggested for early gallbladder carriers.

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THROMBO-ANGIITIS OBLITERANS

THE CONSERVATIVE TREATMENT BY BIER'S HYPEREMIA SUCTION APPARATUS *

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Until recently, the opinion prevailed that this condition is incurable, and that the affected limb will have to be amputated sooner or later. This opinion is shared by many, even now; but since the pathologic changes in the amputated limbs began to be studied more carefully, it has become more and more evident that in almost all there is a tendency to self cure by the establishment of a compensatory circulation, either by anastomotic routes or by the canalization and vascularization of the thrombosed main blood vessels.[1] Since this was demonstrated, there has been a strong tendency toward conservatism in the treatment of the disease, and most of the measures advocated had as their object the correction of a hypothetic, physiologic or pathologic disturbance, which in the opinion of the different observers is responsible for the clinical condition.

As at present practiced, the conservative treatment consists of: (1) surgical procedures, such as arteriovenous anastomosis, and ligation of the femoral vein; (2) the use of drugs, such as nitrites and glandular extracts; (3) the use of substances to modify the state of the blood, such as hypodermoclysis or intravenous injections of anticoagulating substances; (4) local measures to improve or modify the circulation by local agents, such as the use of baking or superheated air, electricity and the induction of an active or passive hyperemia. All these measures are being used by different clinicians singly, combined or in succession. The results, however, are not uniform, the advocates of each method claiming good results, while others in an equally large series of cases report hardly any results whatever.

Superheated air or baking is at present more extensively used in the treatment of this disease than any other measure. The hyperemia and heat produced by this means have a considerable anodyne effect, and the warmth which follows its use and lasts for some time is welcomed by the patient; but a lasting effect is seldom seen, as the troublesome symptoms unfortunately recur after a few hours. All our patients have had their limbs baked every day for a long period of time, and although they liked the temporary warmth obtained, they all agree that it is of no permanent benefit.

The unsatisfactory results obtained by the employment of the various modes of treatment as carried out at present, and the intense suffering of the patients in the advanced stages have impressed us with the necessity of looking for some method which would give temporary relief in the hopeless cases, and promise some permanent results in the less advanced cases. Not only is the superheated air, used with some advantage in the earlier stages, without effect on the extremely painful ulcerated and gangrenous parts, but also it seems distinctly to intensify the pain. The anodyne effect of the hyperemia produced by the baking is offset by the irritating effects of the heat, which is not tolerated by the extremely sensitive parts. The changes and movements of the air incident to the constantly increasing temperature also seem to intensify the pain.

These observations prompted us to try the induction of a local hyperemia without the accompaniment of the factors mentioned above. The passive hyperemia as produced by Bier's suction method seemed to us the most suitable, and the ideal form to use in these cases. The hyperemia produced in this way is more intense than by any other means employed, and the irritating effects of the heat and atmospheric changes are done away with when the foot is enclosed for some time in a vacuum. As the main arteries of the foot are already obliterated in the majority of the cases at the time they come under observation, and as the disease itself has a tendency to self cure by the formation of a collateral circulation, the object of any conservative method of treatment should be to alleviate pain, to keep up the nutrition of the distal parts when gangrene is threatened, and to assist Nature in its attempts to establish a compensatory circulation. In addition to the production of a passive hyperemia, the negative pressure produced by exhausting the air also brings about an arterial hyperemia by its suction effect and by dilating the capillaries. The increased amount of blood thus produced results in greater nourishment to the tissues, and thus gangrene is delayed. Increased nutrition is also favored by the increased osmosis in the tissues taking place as a result of the difference in pressure.

The apparatus used was an ordinary Bier's suction cylinder, large enough to enclose the front part of the foot. The rubber cuff attached to the open end of the cylinder fits snugly around the ankle. The air is exhausted by a hand pump attached to a small opening at the closed end of the cylinder. We prefer using a cylinder which admits only the fore part of the foot,

8. Frothingham, Channing, Jr.: Acidosis in Acute and Chronic Disease, Arch. Int. Med., December, 1916, p. 717.

* From the Physico-Therapy Department of Mount Sinai Hospital.

1. Buerger, Leo: Am. Jour. Med. Sc., October, 1908, p. 567.

to a larger one admitting also a part of the leg, for the reason that there is more local action on the distal parts, which are mainly affected and responsible for the symptoms.

The treatment was begun on several bedridden patients who had suffered with extreme pain and were unable to keep the affected limb in the pendent position. After the first application of this treatment for about five minutes, we were surprised to hear from one patient that his pain had left him, and he was able to sleep a number of hours that night, thus getting rest which he had not had for a number of weeks. The other patients were also greatly benefited: they were able to sleep for several hours after each treatment, their appetite improved, they gained weight, and they became cheerful. An ulceration on the sole of the foot of one patient, which had persisted for months, almost completely healed after five weeks. With the kind permission of Dr. Heinrich Wolf, head of the physicotherapy department of the Mount Sinai Hospital, we proceeded to test the value of this suction treatment on a number of ambulatory patients in the outpatient department of that hospital, all other treatments which the patients were getting at that time having been discontinued. Twenty patients were treated in this way during the past five months, most of whom attended the clinic regularly three times a week.

All the patients have been suffering with this disease for a long time, and have had treatment by the various methods described above. All but two had no pulsations in their feet, both anteriorly and posteriorly; two patients had ulcerations on their second toe; one patient had the femoral vein of one leg ligated; three patients had one leg amputated previously for the same condition. In about half the cases, the feet were blanched, and in the other half they were either cyanotic or red. The results obtained are as follows:

All patients but one were affected favorably, and, as far as subjective symptoms are concerned, the patients assert that they were never before so much benefited by treatment. The case in which no relief was obtained was one of long standing, in which one leg was previously amputated; the other leg has no pulsations, but has normal color, and the only symptom complained of is pain in the calf, and at times, in the sole of the foot on walking. The patient does not seem benefited by any treatment, and his condition is characterized by remissions and exacerbations. Of those favorably affected, two improved so much that they returned to work and discontinued the treatment. Among the early and permanent effects obtained was increased warmth of the toes and foot. This was noticed in every case after about five or six treatments. Another striking improvement noticed was the fact that the patients can now walk without difficulty a much longer distance than they could before this treatment began. Some of them are on their feet the greater part of the day, and have no difficulty, although they were not able to use their feet this way for many months or years. The pain in the toes and soles of the feet either disappeared entirely or abated considerably, though some patients still complain more or less of pain in the calf of the leg. The color of the foot improved in almost every case in which the discoloration was at all marked. Some intensely cyanotic toes assumed a healthy pink hue after two or three weeks' treatment. The ulcerations present in two of our patients, though they have not yet been healed completely, are becoming shallower and smaller, and the pain which was very severe previously has disappeared altogether. There was no return of pulsations noticed in any of the vessels in which the pulse was not palpable at the beginning of treatment.

REPORT OF CASES

Case 1.—H. A., Russian Hebrew, aged 46, truck driver, eighteen months ago, was troubled by pain which appeared in the calf of the left leg and was soon followed by pain in the sole of the foot and great toe. The foot became cold and pale, and the symptoms grew worse, compelling him to give up work. Nine months ago, the femoral vein was ligated by Dr. H. Lilienthal, at the Mount Sinai Hospital. The pain disappeared after the operation, but reappeared two months ago, with all the other symptoms. The patient had been receiving treatments by baking all along, with no beneficial results. On examination, Sept. 3, 1916, the foot and leg were swollen and blue, the great toe was cold and showed evidences of impaired nutrition, the nail was distorted, and the color of a striking purplish blue. No pulsations were felt in any of the arteries of the foot or leg. The suction treatment was carried out regularly three times a week for from ten to fifteen minutes at a time. September 12, the patient was able to walk ten or twelve blocks without any difficulty, and the foot and toes felt much warmer. September 20, the great toe was of a good pink instead of the previous purplish blue. It felt warm, and the patient was able to attend to his business. He is still taking this treatment regularly, is on his feet the greater part of the day, does not complain of coldness, and has only an occasional painful sensation in the great toe, especially on change of weather.

Case 2.—I. B., aged 39, Russian Hebrew, tailor, fifteen years ago, was troubled by the great toe of his left foot, which became blue and cold, ulcerated, and was finally amputated. Eight years afterward, the same signs appeared in the right foot, and after seven years of suffering, this leg was amputated above the knee. Five months ago, an ulceration appeared on the second toe of the left foot. The toe became red, swollen and extremely painful, especially at night. Pulsations in the dorsal and plantar arteries of the foot were absent. Treatment was begun, Sept. 5, 1916. The patient felt much better after the first treatment, and slept well at night. September 12, he could walk several blocks without difficulty, and the foot felt warmer. September 30, the patient had no pains at all in his foot, the toe was not swollen, and the ulceration was shallower. At present, the ulcer is about half the size it originally was, there is no pain whatever, and the patient sleeps well and is able to walk a number of blocks without difficulty.

Case 3.—N. W., aged 49, storekeeper, was troubled with his veins for many years. Twelve months ago, pain appeared in the calf of one leg, soon followed by pain in the other. The pain occurred mostly when the patient walked, compelling him to stop frequently (intermittent claudication). Soon the feet and legs began to feel cold, and pain appeared in the inner side of the foot, in the sole, and at times in the toes of both feet. On examination, September 9, the feet were found pale, with a distinct bluish tracery of the veins. No pulsations in any of the vessels of the feet were perceptible, and they were cold to the touch. September 19, the patient felt much improved, could walk without difficulty from his home to the hospital (fourteen blocks), the feet felt warm, and there was no pain in the soles and inner side of the feet; but the patient still had an occasional pain over the base of the toes. He attends to treatment regularly. The feet have not changed color, they feel warm, and the patient can attend to his business. No pulsations are perceptible.

Case 4.—N. B., aged 40, Russian Hebrew, operator, was troubled about ten months ago with pain which appeared in the right foot and toes, and he had difficulty in walking. The foot and toes began to feel cold. Five months later, he was operated on for a bunion on the right foot, and two months elapsed before the wound closed. Since the operation, the toes, especially the great toe, had been blue, cold

to the touch, and painful. There was also some pain in the sole of the foot. The pulse was not perceptible in the dorsalis pedis artery, but was present in the plantar arteries. Treatment was begun, Sept. 26, 1916. October 5, the patient felt much better, he had very little pain, could walk without difficulty, and the foot felt warm. He left then for the country. Because of the reappearance of the pain a week before, the patient returned from the country to resume treatment, November 3. This was kept up until November 28, when he returned to his work, the foot feeling warm, free from pain, and the color being good.

CONCLUSIONS

1. Admitting that many cases run a progressive course, the only treatment for which is amputation, we still firmly believe in conservative treatment for the majority of cases.

2. The various measures resorted to in the conservative treatment of this disease have proved, in the majority of cases, to be either of only temporary value or of no value at all in alleviating the symptoms.

3. The hyperemia suction treatment gives results unsurpassed by any other method available.

4. The beneficial effects observed are: increased warmth of the parts, improvement of the color, alleviation of pain, and more rapid healing of ulcerations.

5. Although occasionally a patient may not respond to this treatment, and some cases are too far advanced for benefit to be received by it, the improvement observed in the vast majority of cases is so evident that we firmly believe that this method deserves a definite place in the conservative treatment of thromboangiitis obliterans.

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THE SELECTIVE ACTION OF SPIROCHETES

REPORT OF FOUR CASES OF FAMILIAL OPHTHALMOPLEGIA INTERNA, DUE TO CONGENITAL SYPHILIS *

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CASE REPORTS

The following cases came under my observation about two and one half years ago:

The father was referred to me for treatment of a spastic hemiplegia, from which he had been suffering for about sixteen months. The paralysis came on gradually over a period of several months, during which time the patient had a number of convulsive seizures. After each convulsive seizure the paralysis became more profound, until the right side became completely involved. His speech also became affected. He had been a moderate user of alcohol and tobacco. He denied ever having had venereal infection. The family history was rather suspicious. His wife had had three miscarriages; one at eight, one at seven and the third at three months. These were followed by the birth of four children, now aged 13, 11, 9 and 7 years, respectively.

Physical examination revealed a poorly nourished middle aged man. There was a spastic hemiplegia on the right side. The pupils were irregular, unequal, and did not react to light. There was a sluggish reaction to accommodation. In the absence of an endocarditis, with no apparent renal disturbance, and the presence of a normal blood pressure, the diagnosis of cerebral syphilis was made.

Examination of the blood and spinal fluid revealed a ++++ Wassermann reaction. Globulin was present in excess. The cells, however, were not estimated.

I then examined the wife for evidence of conjugal infection. Although no active discomfort was complained of, I was able, on close questioning, to elicit a history of frequent attacks of moderately severe headaches, accompanied by dizziness and nausea. Her vision was failing, and at one time she had had a fleeting attack of diplopia. She had unequal, irregular pupils which were almost completely fixed to light and reacted sluggishly to accommodation. Superficial and deep reflexes were equal and active. Sensations were normal. There was no disturbance of gait. The blood Wassermann was ++++.

The presence of syphilis in the parents then led me to inquire into the condition of the children. The oldest child, P. H., had had snuffles and an eruption at birth, which lasted about one month. He had always been nervous and irritable and considered below par mentally; otherwise the history was negative. The third child, H. H., had an eruption at birth, but no snuffles. At the age of 7 he had an attack of convulsions, which were followed by spasticity and dragging of the lower extremities. The second child, I. H., and the fourth child, F. H., each gave a negative history.

In the oldest, second and fourth children, the pupils were widely dilated, unequal in size, irregular in outline, and did not react to light, accommodation, convergence or the instillation of physostigmin salicylate (a 1 per cent. solution) into the eye. The third child, H. H., in addition to these pupillary disturbances, had an active nystagmus, bilateral Babinski phenomenon, bilateral inexhaustible ankle clonus, increased knee and ankle jerks, and a well defined spastic gait. He also had about 2 diopters of swelling in the optic nerve heads. The teeth in the three older children, although not typically hutchinsonian, were highly suggestive.

The blood Wassermann was ++++ in the third child, doubtful in the two older children, and negative in the youngest. The second series of Wassermann reactions were made six months after the children had been receiving treatment, and were ++++ in all of the children. Subsequent examinations at six month intervals to the present time do not show any changes.

The presence of widely dilated pupils which react to light, accommodation, convergence or the instillation of miotics into the eye led me to the conclusion that we were dealing with a paralysis of the pupillary sphincter and the ciliary muscles: an ophthalmoplegia interna, probably of specific origin.

Antisyphilitic treatment was instituted in all of the cases. The mother and children received mercury in the form of inunctions daily, and potassium iodid in increasing doses (up to 10 grains in the children, and 20 grains in the mother), three times a day. The father received four intravenous injections of salvarsan, followed by weekly intramuscular injections of mercury salicylate, and potassium iodid by mouth.

This treatment has been continued for two and one half years. The father's condition has remained unimproved, while the mother's condition is somewhat better. She still suffers from an occasional headache; but increasing the iodid promptly relieves her. Her vision still remains poor, although there has been no further loss in the past two years.

The second and fourth child's pupils react promptly to physostigmin, convergence and accommodation, but are still a little sluggish to light. The oldest child, P. H., shows slight return of the reaction to physostigmin, less to convergence, and no return of reactions to accommodation or light reflex. The third child, H.H., shows slight improvement in his gait and nystagmus. The papillary edema has cleared up entirely. The pupillary phenomena, knee jerks, ankle clonus and Babinski, however, remain unchanged.

COMMENT

Ophthalmoplegia interna is the rarest form of pupillary disturbance found in congenital or acquired syphilis of the nervous system. It manifests itself clinically

* Read in part and cases shown before the New York Academy of Medicine, Section on Neurology and Psychiatry, May 9, 1916.

as a paralysis of the intrinsic muscles of the eye. The pupillary phenomena may be unilateral or bilateral, the unilateral being encountered about twice as frequently as the bilateral. The phenomena consist of widely dilated pupils which do not react to accommodation, convergence or light reflex. Such pupils do not contract when physostigmin or other miotics are dropped into the eye. In the syphilitic cases, the pupils are, in addition, unequal in size and irregular in outline.

It is of interest to note that when the pupillary activity returned in my cases, during the course of antispecific treatment, the response to physostigmin was the first to appear. This was followed by the return of the reaction to convergence, next accommodation, and last of all light reflex. The same sequence was noted in three of the patients, two of whom have almost completely recovered their pupillary reactions.

The extreme importance of early recognition of these cases of latent congenital syphilis is evident. It is highly probable that some further involvement of the central nervous system would have occurred if treatment had not been instituted in these cases. It is also probable that such involvement may still occur despite the treatment.

The subsequent histories in this class of cases show that many of the patients are candidates for the juvenile types of tabes, paresis and other allied central nervous disorders. The only hope left for these unfortunate victims is early recognition of the danger to which they are exposed, and institution of the most intensive antisyphilitic treatment as soon as the condition is recognized.

Of the pathology of ophthalmoplegia interna, little has been written. The lesion is presumably nuclear. In syphilitic cases, it is most probably either a gumma or a degenerative process, due to endarteritic changes in the region of the third nerve nucleus.

The most common cause of ophthalmoplegia interna is syphilis of the central nervous system. Among the less frequent causes may be mentioned postdiphtheritic paralysis, trauma, and overstimulation with mydriatics, as atropin.

When a syphilitic infection occurs, the local spirochete inoculation is soon followed by a general infection.

Of the tissues which are equally accessible in a general infection, the most vulnerable will be the first attacked. At the same time this tissue heals, it develops a resistance against the infecting agent. In other words, it becomes less vulnerable, a property which the unaffected tissues do not as yet possess. This is illustrated by the definite line of invasion which we constantly find in a general syphilitic infection. It begins with the local site of inoculation, followed by invasion of the glands, mucous membranes and deeper tissues, each usually separated by periods of apparent perfect quiescence. Only exceptionally is the central nervous system invaded, and then this is usually the last tissue to be attacked.

Drs. Wile and Stokes of Ann Arbor demonstrated biologic changes in the cerebrospinal fluid in 63 per cent. of their cases presenting secondary syphilis. They concluded, however, that not more than 5 per cent. of these cases later gave destructive manifestations of central nervous syphilis.

The defensive property of a tissue which has healed may not be restricted to the particular strain of organism which called it forth, as von Krafft-Ebing has shown, by inoculating eight general paretics with virulent syphilitic material. In none of them did local reactions follow. Truffi, Ullman and Tomasczewsky have also shown in dogs that a similar local immunity exists in the different tissues to a second inoculation with the spirochete.

From the work of Reasoner, it would seem that there is little doubt as to the existence of distinct strains of the spirochete. He took twenty strains of the organism and experimentally produced the disease in rabbits. He found that definite strains produced definite lesions, and that these lesions could not be produced by any of the other strains of organisms.

Conjugal syphilis of the nervous system, manifesting itself either as tabes, paresis or cerebrospinal syphilis, is not as rare as its reports in the literature would indicate. Drysdale,[1] in a recent article, reviews some of the literature on the subject, and mentions cases by Laignel-Lavastine and Mercier, Ferenczi, Garnier and Sautenoise, and Junius and Arndt. In the discussion on his article, a number of other instances of conjugal cerebrospinal syphilis were mentioned. Bélières records three cases of general paresis and two of an allied nature, in which all the patients owed their contamination to the same woman. Beaussart quotes a series in which a syphilitic husband, free from nervous affection, had a wife who became tabetic, and a daughter who was a general paretic. After divorce, the husband remarried and his second wife also developed tabes. He also reports the case of a glass blower, A, who received a buccal chancre from a syphilitic fellow workman, B, through using his drinking cup. A and his wife died of general paresis; B died from general paresis. B's wife remained normal, but her lover afterward had tabes. In another group of Beaussart's, a man who had general paresis had a taboparetic wife. She had a lover who developed general paresis and whose wife showed pupillary changes. Morel Lavall records a series of five cases of general paresis with a common source of syphilitic infection. Pierre Marie, Bernard and many others have reported similar series. These instances could be multiplied many times, if all the cases encountered should be reported.

From the evidence deduced by the experiments of Reasoner, Truffi, Ullman and Tomasczewsky, we may assume that when the same lesions occur in persons infected with syphilis, these lesions are due to the same strain of organism. And when the same lesions occur in members of the same family, it is highly probable that they are due to the same strain of organism.

Hereditary susceptibility would here seem improbable, when we take into consideration the cases of conjugal syphilis reported by Drysdale, Bélières, Beaussart, Laignel-Lavastine and a host of others. In those cases allied lesions occurred in persons who were unrelated. They were probably infected, however, by a definite strain of spirochetes.

In my cases, we may assume that the wife received her infection from the husband. The occurrence in her, and in all the members of the family, of central nerve involvement strongly suggests a selective property of the infecting spirochete. Another striking feature in this group of cases is the slight and almost complete absence of invasion of other tissues preceding the involvement of the central nervous system.

CONCLUSIONS

1. Ophthalmoplegia interna is a rare condition; it may be familial.

1. Drysdale, H. H.: Conjugal Paresis, THE JOURNAL A. M. A., July 29, 1916, p. 340.

2. It may be the only objective evidence of congenital syphilis of the central nervous system.

3. All offspring should be carefully examined for latent syphilis when the parents are known to be infected.

4. When evidence of latent syphilis is found, treatment should be instituted; it must be continued until all clinical and biologic evidence of the disease disappears.

5. In my cases, the condition is due to a strain of spirochete which probably possesses a selective property for nerve tissue.

NOTE.—Later observation of these cases has disclosed some interesting facts. The father has developed frank paretic symptoms and has been committed to a state institution. In the oldest child, P. H., whose pupillary phenomena had begun to return, the pupils have again become completely immobile. He has developed marked weakness of the lower extremities, bilateral Babinski reflex, bilateral ankle clonus, increased knee and ankle jerks, and a slightly spastic gait.

Through the courtesy of Dr. B. Sachs, the two children with the spastic paraplegia were taken into his ward at Mount Sinai Hospital for arsenobenzol injections. They have received to date two intravenous injections of 0.2 gm. each. As yet, no improvement in their symptoms is discernible.

The cerebrospinal fluid, as well as two examinations of the blood, in these children and the mother, showed a + + + + Wassermann reaction.

1 West Eighty-Fifth Street.

The Drying of Vegetables.—The process of drying as a preservative process for vegetables is being rapidly extended, both as a matter of conserving food products that now go to waste, and as helping to solve transportation burdens. A new process, in use in several plants in this country, consists in using heated air at a lower temperature than is usually employed abroad, and insuring a thorough circulation of the air currents so as to reach every particle of the fruits or vegetables undergoing desiccation. The residual water is well inside 12 per cent., and the desiccating process does not injure the cellular membranes of the vegetable matter. Depending on the amount of water in the vegetables, the process may be completed within two and a half to five hours, about half the time of the foreign process. The products retain their fresh taste and full flavor when prepared for the table, and on account of their cellular structure being uninjured they regain their normal fresh appearance after being soaked in water a short while. A truck load of mixed vegetables dried by this method will weigh only a hundred pounds and fill a barrel. Of soup vegetables, a pound will make soup sufficient for sixty persons. It will be seen that for naval or military purposes, or for feeding large bodies of men at points distant from sources of supply, this method of preserving food products offers great advantages.

UMBILICAL POLYP

WITH REPORT OF A CASE

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Umbilical polyp is a remnant of the omphalomesenteric or vitelline duct. Normally on the fifth or seventh day after birth the umbilical stump drops off, and in a few days the remaining surface closes over. With umbilical polyp, the region of the navel remains bright red with a granular appearance following the separation of the stump. It bleeds easily, resists local treatment, and a painless, bleeding condition continues for months or years. Persistent weeping from a cord stump in infants is often due to a patent omphalomesenteric duct.

Fig. 1.—Longitudinal section of polyp; *s m*, line of junction between skin and mucosa; *m*, mucosa; *s*, skin.

This granular looking surface is revealed by the microscope to consist of intestinal mucosa with villi, glands of Lieberkühn, goblet cells, muscularis mucosa, etc. The presence of intestinal mucosa is explained by the fact that in the early embryo the omphalomesenteric duct communicates with the digestive tract. At the beginning of embryonic life the yolk sac, which is spherical, communicates with the intestine by a wide opening. A little later the yolk sac becomes constricted from the embryo, but remains connected with the intestine by a narrowed portion known as the omphalomesenteric or vitelline duct. Finally the yolk sac becomes incorporated with the placenta, and the omphalomesenteric duct as a filament of cells runs through the entire length of the umbilical cord. Usually during fetal life the proximal part of the duct lying between the intestine and the umbilicus degenerates and disappears. In a small number of cases it does not disappear, but retains its lumen and continues to connect the intestine with the umbilicus.[1]

The umbilical polyp may be closed or patulous. If patulous, fecal contents escape and a probe can be inserted through the fistula into the bowel. The amount of discharge depends on the caliber and tortuosity of the duct. Occasionally the opening may be so concealed in the umbilical depression that detection is difficult. In such cases one may be at a loss to explain the fecal discoloration and odor on the dressing. Through an omphalomesenteric duct of large size, the small bowel may prolapse.

1. The embryology of the omphalomesenteric duct is described and illustrated by Cullen, Thomas S.: Embryology, Anatomy and Diseases of the Umbilicus, Philadelphia, W. B. Saunders Company, 1916.

REPORT OF CASE

History.—A. B., a girl, aged 12 years, Italian, with negative family and previous medical history, was brought for treatment of a small growth at the navel which wept and bled so freely that it stained her underclothing, and seeped through and soiled her dresses. Her mother said that the condition had existed since birth, and that the "cord never healed." There was apparently no pain, and the lesion did not increase in size. It was inconvenient only because of the annoyance from the bleeding. The mother had never detected any fecal odor or discoloration on the dressings. In recent months the amount of bleeding had markedly increased.

Examination.—Filling the navel fossa was a circular bright red granular looking surface 1.75 cm. in diameter and elevated about 0.5 cm. above the surrounding skin. There were no impulse, no evidence of umbilical hernia and no weakness of the rectus muscle. On probing I found no communication leading from the external surface. The Wassermann and von Pirquet tests were negative.

Treatment.—A 4 inch elliptic incision around the umbilicus was made, and the polyp with the surrounding tissue was carefully dissected down to the sheath of the rectus muscle. At this juncture the structure narrowed to about 2 mm. On transverse section a patulous duct was found and a probe was inserted 5.5 cm. into the abdominal cavity. On account of the firm abdominal wall, no effort was made to dissect beyond the muscle sheath. The duct was ligated, and the stump touched with the actual cautery and buried beneath the rectus sheath. Recovery was uneventful. The parents were advised of a future possibility of intestinal obstruction.

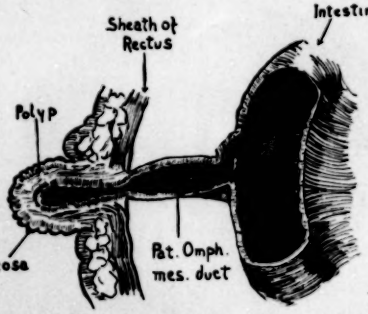

Fig. 2.—Umbilical polyp, sectional view; a similar condition is illustrated and described by Cullen, Figure 66, p. 121.

Pathologic Report (by Dr. Benjamin T. Terry, director of the Brooklyn Laboratories of Pathology). — Macroscopically the specimen consists of a mass of skin measuring 2 by 2.5 cm. Projecting from this skin is a mass of grayish tissue 0.7 cm. in diameter. On section this mass is grayish, and appears to have a rich blood supply.

Microscopically, sections show skin from which a polypoid mass of tissue arises. The polyp is covered externally by a mucosa which resembles that of the small intestine. In the mucosa can be distinguished villi which show a cuticular border, glands of Lieberkühn, many goblet cells, a tunica propria, and a muscularis mucosa. Beneath the muscularis mucosa is seen connective tissue through which thick bundles of smooth muscle fibers run. Dilated blood vessels are numerous in the tunica propria, in the muscularis mucosa, and in the connective tissue below this. On each side of the polyp the mucous membrane comes in close contact with the epithelium of the skin. There is, however, no evidence of transition between the mucous membrane and the skin. The epithelium covering the skin is thin, but the skin appears normal. In some of the sections the central portion of the polyp is occupied by a large mass of fatty tissue which is so thin that on macroscopic examination of the slide the central portion seems to be almost hollow.

COMMENT

The method described above is the one most frequently employed in the reported cases. Since there is always a possibility of the polyp being attached to a Meckel's diverticulum, or connected with one, with subsequent danger of intestinal obstruction, probably the wisest thing to do is to dissect down to the attachment with the intestine, and if a Meckel's diverticulum is found, to tie it off at the intestinal junction.

PHLEGMONOUS GASTRITIS*

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LINCOLN, NEB.

The principal object in mind in taking up the subject of phlegmonous gastritis is that this subject is particularly rare and the cases reported in the literature very few. The earliest known description of a case is in a communication by Verandaeus in 1620. In 1839 Androl and Cruveilhier appear to have been the first to have observed the diffuse form. In the seventeenth and eighteenth centuries there are only three or four reports. In 1896 there appeared an admirable monograph by Leith[1] of Edinburgh in which he gave short abstracts of fifty-one cases which he had gathered from the literature. Later on, an assistant of Moynihan reviewed a part of the literature. In 1900 Max Jacoby[2] reported two cases that had come under his personal observation. He also reviewed all the cases then reported in the literature, numbering about sixty-four. He gives an exceedingly scholarly résumé of the etiology, pathology, symptoms and causes of the disease. All in all, his monograph is a classic.

In 1907 Cecil[3] of Johns Hopkins reported a case, and also gave a short outline of other cases reported in the literature since the review by Leith. In this thesis there is an endeavor to report a case and to review all the literature from the time of Cecil's report in 1907 up to Jan. 1, 1916. There are also in the bibliography references to a number of cases occurring in the literature between 1896 and 1907 which have not been quoted by Cecil. Up to the present time only a few more than 150 cases are reported.

During the years from 1904 to 1912 the subject received more or less attention from the German investigators. About that time phlegmonous gastritis was credited with three inaugural addresses before different hospital and college assemblies.[4]

The following is the report of a case that came under my observation:

History.—In the latter weeks of January, 1916, a laborer (night watchman and janitor) called me to his home. He was 63 years old and was living with his second wife. Four healthy children had been borne by the first wife. He had had an infected ear when a child, which resulted in a partial loss of hearing. Ever since he had lived in Lincoln (a period of three or four years) he had been subject to occasional coughing spells, when he raised some bright red blood. These occurred only once every three or four months. He had had some nasal catarrh for years. He had gained in weight dur-

* On account of lack of space, this article is abbreviated in THE JOURNAL by omission of a review of the literature. The complete article appears in the author's reprints, a copy of which may be obtained on application to the author.

1. Leith, R. F.: Phlegmonous Gastritis—Its Pathology, Etiology, Symptoms and Treatment, Edinburgh Hosp. Rep., 1896, **4**, 51.
2. Jacoby, Max: Ueber Gastritis phlegmonosa, Königsberg, 1900.
3. Cecil, A. B.: Phlegmonous Gastritis, Johns Hopkins Hosp. Bull., 1907, **17**, 336.
4. Herrmann, Oskar: Ueber die Phlegmone der Magenwand, Munich, 1912. Mau, Heinrich A.: Ueber Gastritis phlegmonosa, Inaug. Diss., Kiel, 1904.

ing the last year. His habits were good; it was seldom that he touched alcoholics.

He complained of a general aching; his throat was sore; he coughed slightly, and had headache and backache. The temperature was moderately elevated. Physical examination revealed nothing more than an acutely inflamed throat. I concluded that he had a grippal infection, advised accordingly, and left him.

Almost a week later I was called to see him again. He had not returned to work in the meantime. He had had a slight chill the night before, and had vomited most of the night, and more or less in the morning. The vomitus was yellow; no blood was observed. He said that his bowels had moved somewhat, but he felt that the movement was not sufficient. He complained of some pain in the left epigastrium. An hour before I arrived he had retained some fluids. He was thirsty. His temperature was 102¼, the pulse, 120. Physical examination revealed a somewhat dry tongue, fairly well furred. There was some tenderness in the epigastrium, extending slightly to the left. There was some resistance in this area. No mass could be palpated. The remainder of the abdomen was soft. There was no distention whatever. The urine showed no abnormalities.

The next day I called again. The temperature was 102½, the pulse 114. There had been little vomiting, and no movement of the bowels. The patient looked ill; he was groaning with pain, was restless, and had slept very little. His face was somewhat pinched. The epigastric pain was more intense. The patient, however, could drink milk. The area of tenderness had extended downward and slightly to the right. There was a little resistance in the left hypochondrium, but the abdomen as a whole was absolutely soft.

A surgical consultant was called. We could not conclude what the difficulty was. A dose of castor oil was ordered, with instructions to save the stools if there were any.

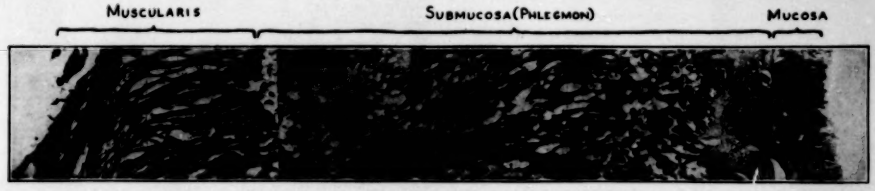
The next day the consultant and I called again. Large fluid evacuations had occurred. The stools were not characteristic of any abnormalities. The epigastric pain was severe. The patient was groaning; he was restless. He had been a little delirious during the night. However, he had retained a fair amount of milk. The temperature was 102, the pulse 110, the urine negative.

That evening I called and the patient complained less. The next morning there was no distinct change. He had had a restless night. There had been some delirium; the tenderness was probably a little lower. That evening both the consultant and myself were called. The patient was groaning with pain, rolling about somewhat, he felt very ill, and was thirsty. The temperature and pulse were practically the same. The pain and tenderness had extended downward almost to the level of the umbilicus. There was some distention; the tongue was dry and furred. We felt that a peritonitis was extending from the upper abdomen downward. Its origin we did not know. We decided that an exploratory laparotomy was indicated. The patient was removed to a hospital, and an operation performed.

Operation.—It revealed a peritonitis most pronounced at and near the stomach. Almost the entire stomach was covered with a fibrinous exudate. The stomach was somewhat enlarged, and the walls felt very thick and boggy. The infection had evidently started at the stomach. There was no ulcer or cancer or any other pathologic condition that could be looked on as the original source of the infection. The abdomen was closed with drainage. There was a good recovery from the anesthesia, but the patient died in twenty-four hours.

Necropsy.—A partial postmortem was permitted, but not until after the body had been injected by the undertaker. The stomach was the chief point of interest. As a whole it was somewhat enlarged. It was more or less covered by a rather thick fibrinous inflammatory exudate. The veins were prominent and somewhat congested. The walls felt thick and edematous. At least two thirds of the stomach wall was involved. When the stomach was opened an ounce or two of a thin, yellowish fluid was found. The cut surface of the wall was an inch in thickness. Pus exuded from the cut surface, and an unusual quantity could be expressed. The mucous membrane was partially covered with a mucofibrinous exudate. The submucosa was markedly thickened. The thickness of the entire wall was due almost entirely to the condition within the submucosa. It was yellowish white, and an unusual quantity of pus could be expressed from this layer also. The muscular coat was somewhat thick and congested. The outer coat demonstrated an acute fibrinous peritonitis.

Microscopic examination revealed that the thickness of the stomach wall was due particularly to the infiltrate in the submucosa. There was probably a little round-cell infiltration in the mucous membrane, but it was difficult to tell on account of the character of the normal glands. In the submucous layer the structures were widely separated by the inflammatory exudate. It was difficult to find the blood vessels, which were also widely separated. Some vessels were thrombosed. The exudate was made up of round cells with some fibrin. The round cells were practically all polymorphonuclear. The blood vessels seemed dilated, and had a tendency to thrombose. In some areas the entire original structure was replaced by the infiltrate. The muscular layer was also invaded by the multinuclear round-cell infiltrate. The muscle bundles were also widely separated. The pancreas and the kidneys both showed an acute degenerative process. This was an important finding, as it showed the absorption of a rather severe toxin.



Photomicrograph of section of stomach wall, showing extent of the phlegmon. Note scarcity of normal tissue between mucosa and muscularis; the space is practically filled by phlegmon. Note also the spaces in the muscularis where the muscle fibers are separated by seropurulent material.

Bacteriologic examination was not made; streptococci, however, could be seen in the tissue section. No other organs were examined microscopically.

A pathologic diagnosis of acute, diffuse idiopathic phlegmonous gastritis, with acute peritonitis and acute degeneration of pancreas and kidney, was made.

PROGNOSIS

The prognosis is extremely bad. In all the cases reported in which the diagnosis of general phlegmonous gastritis was beyond question, there is mention of only one case which did not terminate fatally.

TREATMENT

The treatment is merely expectant. These cases have been attacked surgically. F. Koenig[12] succeeded

12. Koenig, Fritz: Ueber Magenwand phlegmone im subakuten Stadium und eine Heilung durch Magenresektion, Deutsch. med. Wchnschr., 1911, **37**, 631.

in making a resection of the stomach in a case of true diffuse phlegmonous gastritis, with recovery. This is the only case of recovery on record. There are a number of other cases of successful operations reported, as those of Hemmeter, Bovec,[13] and others. In none of these, however, was a true phlegmon present, but on the other hand all were abscesses, or an infection extending into the tissue from an ulcer or cancer.

OVERLOOKED COMMON DUCT STONES*

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CHICAGO

The object of this paper is to direct attention to two conditions, the existence of which is not sufficiently well known if we wish to lessen the number of recurrences following operations on the bile passages. These conditions are:

1. Calculi may be present in the common or hepatic ducts without giving rise to the symptoms which we have always considered pathognomonic of calculi in these locations.

2. Even at operation when the common duct is palpated to determine the presence of calculi, they may be found in a certain percentage of cases even if our usual methods of palpation yield negative results.

By the expression "usual methods" I refer to the fact that the segment of the common duct which is almost invariably palpated is the supraduodenal portion. Calculi lying in the retroduodenal division, that is, just above the ampulla, are not palpable through the overlying duodenum unless they are of relatively large size or unless the mobilization incision of Kocher has been employed to expose the retroduodenal portion for direct palpation.

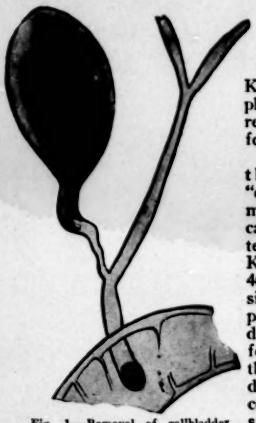

Fig. 1.—Removal of gallbladder with large calculus two years before by another surgeon. Recurrence of symptoms (pain with slight icterus) eighteen months later. Negative palpation of common duct but calculus size of navy bean found just above ampulla in retroduodenal portion of common duct at second operation.

I became interested in the question of the "overlooking" of common and hepatic duct calculi at operation, after reading an article by Kehr.[1] In seventeen, or 46 per cent., of thirty-six cases in which palpation of the common duct was negative, he found calculi in either the hepatic or the retroduodenal portions of the common ducts. The reason such calculi are often overlooked or rather why they are not felt is that they swim in the stagnant bile or lie just above the ampulla in the retroduodenal portion, which is not readily accessible to palpation. Kehr, in the paper referred to and in subsequent publications,[2] states that in about 20 per cent. of all of his cases the common duct calculi belonged to the latent class, that is, produced no symptoms, such as icterus, chills and fever, which we have always considered to be characteristic of such calculi.

During the past four years, in the course of a large number of operations on the biliary passages, I have explored the common and hepatic ducts in thirty cases in which palpation was negative. In ten (33.3 per cent.) of these, calculi[3] were found on exploration in spite of negative palpation. None of these thirty patients died, and I am confident that the mortality will not be increased in the hands of other surgeons if a rapid technic[4] for exploring the common and hepatic ducts is developed by the surgeon.

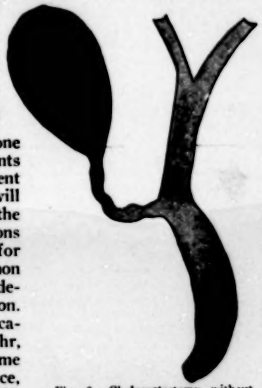

Fig. 2.—Cholecystostomy without finding calculi two years before by another surgeon. Recurrence of symptoms eighteen months later (pain, icterus, chills and fever). At second operation negative palpation of common duct, but two calculi the size of peas found at lower end (just above ampulla) of common duct.

Of the four indications given by Kehr, three have seemed to me of especial importance, in the order named: (1) the presence of many small calculi in the gallbladder or cystic duct; (2) an enlarged, thick walled common duct; (3) the presence of chills, fever or icterus. To these I would add a fourth: recurrence of pain or symptoms of cholangeitis (chills, fever, etc.) after previous operations, such as drainage or removal of the gallbladder, or even after previous choledochostomies. In two of my ten cases with positive findings (although even my palpation had been negative), operation had been performed by other surgeons (Fig. 1).

In one of these, the gallbladder had been explored without finding calculi and then drained. Eighteen months later the patient began to have pain in the right hypochondrium with icterus, and I operated on him. The gallbladder walls were thick, but no calculi were found. The common duct was of the size of two adult thumbs, thin walled and negative on palpation. On exploration of the common duct, a calculus the size of a navy bean was found just above the ampulla.

In a second case the greatly thickened gallbladder containing a large calculus impacted at its neck had been removed by one of my colleagues. Two years later the patient began to have pain in the epigastrium, icterus, chills and fever. I found the common duct greatly enlarged, and although palpation was negative, two faceted calculi, the size of a navy bean, were found just above the ampulla (Fig. 2). In neither of

13. Bovec: Suppurative Phlegmonous Gastritis, Am. Jour. Med. Sc., May, 1908.

* Read before the Elkhart County, Indiana Medical Society, Nov. 2, 1916.

1. Kehr: When, During the Course of Gallbladder Operations, Shall We Open the Common Duct if Palpation is Negative? Arch. f. klin. Chir., 1912, 97, 301.

2. Kehr: Monographs on surgery of bile passages, 1913.

3. In six cases the common duct calculi were of such size as to render it improbable that they would have passed into the duodenum spontaneously.

4. The author's technic and the later work on the surgical anatomy of the region will be given in a second paper, which will be furnished on request.

these cases were any symptoms referable to the common duct calculi present at the time of the primary operation, and there has been no recurrence since the secondary one.[5]

The chief indication for opening the common duct in eight cases in spite of negative palpation was the presence of many small calculi in the gallbladder. In all of the eight cases of positive exploration after negative palpation the number of calculi in the gallbladder varied from twenty to 300.

In three cases (Fig. 3) the common duct calculi were the size of a pea, faceted, and fifteen in number. In the majority of the ten cases the calculi were found in the retroduodenal portion of the duct. In two cases a number of small calculi of the same size (Fig. 4) and composition as those in the gallbladder and common duct were either found in the hepatic duct or escaped in a perfect shower from this duct while the edges of the opening in the common duct were retracted. In one of these patients there has been a recurrence of symptoms in spite of a cholecystectomy and choledochostomy with removal of calculi from the common duct.

The articles of Poore,[6] Beer,[7] and Lewisohn,[8] have directed attention to the importance of intrahepatic cholelithiasis, and the three last cases are in all probability due to the formation of calculi in the intrahepatic bile passages and explain some of the cases of recurrence even after removal of calculi and drainage of the common and hepatic ducts.

In eight cases in which no previous operation had been performed, the principal symptoms were:

1. Pain, for months to years, not to be distinguished from that due to the gallbladder.

2. Icterus, slight and only during attacks of pain in three cases. In one case there had been distinct icterus during one attack. In the remaining four cases there was no icterus at any time.

3. Chills and fever, present in only one case of the eight. The common duct varied in size from a little finger to a thumb. The pancreas was hard and enlarged in only three of the ten cases.

The systematic exploration of the common and hepatic ducts has not increased the mortality in my experience. The fact that symptoms pointing to common duct calculi were absent in the majority (six of ten cases) shows that we have a clinical group of silent or latent calculi which may escape palpation by the surgeon unless he is prepared to make a thorough exploration of the bile passages if the indications just given are present.

Fig. 3.—Typical findings in a case in which many small calculi were present in the gallbladder and palpation of the common duct was negative, but calculi the size of a pea were found embedded in thick bile at the lower end of the common duct (just above the ampulla).

The finding of calculi in the hepatic and common ducts in ten of thirty cases after negative palpation of the common duct shows how easy it is for one to overlook such calculi. With more thorough search for calculi in the common and hepatic ducts, our percentage of recurrences must rapidly decrease.

It is my practice to open the gallbladder first, and after the calculi have been taken out to use it as a tractor while the common duct is opened in its supraduodenal portion. After the common and hepatic ducts have been explored, the calculi removed and a T shaped drain inserted, a cholecystectomy is performed as the last step in suitable cases.

Fig. 4.—Case showing simultaneous presence of calculi in gallbladder, and the cystic, common and hepatic ducts; the last named illustrates how recurrences may be due to intrahepatic cholelithiasis. At operation, palpation of the common duct was negative but many calculi were found at the lower end and also many escaped in a shower from the direction of the liver.

CONCLUSIONS

1. In 20 per cent. of cases of calculi in the hepatic and common ducts, either no symptoms indicative of their presence are found or they are overshadowed by those of an accompanying gallbladder condition.

2. In the past four years calculi have been found at the lower end of the common duct in ten of thirty cases in which palpation was negative.

3. Exploration of the common duct does not increase the mortality, and should be done whenever one of the indications given above is present.

4. Recurrence following operations on the gallbladder and common duct may be due to overlooked or newly formed calculi in the intrahepatic bile passages.

30 North Michigan Avenue.

5. Since reading this paper, I have removed three calculi, the size of a pea, from the common duct in a patient on whom a previous drainage and later removal of the gallbladder had been done by another surgeon. At the first operation a large number of small calculi were removed and the common duct found negative on palpation. The gallbladder was removed three months later on account of a biliary fistula due to a stone in the cystic duct. Jaundice and fever followed the second operation and three months later I found the common duct greatly dilated and one of the three calculi impacted in the ampulla of Vater.

6. Poore: Surg., Gynec. and Obst., 1912, **15**, 634.

7. Beer: Arch. f. klin. Chir., 1904, **74**, 301.

8. Lewisohn: Ann. Surg., 1916, **63**, 535.

Danger of Quick Cure in Skin Diseases.—A cure, if possible, should be brought about as quickly as practicable. The belief of the laity that impurities are trying to get out, and that it is, therefore, dangerous to the general health to cure or to cure too rapidly, and which formerly found honest believers among physicians, is wholly without foundation. This view has been strongly supported purposely by advertising nostrums, and has likewise been a convenient cloak for medical advisers helplessly at sea in cutaneous therapeutics. On the contrary, the putting of the skin, an important organ and emunctory of the body, into a healthy state, will not only relieve the patient of an annoyance and worry, but conduce to his general well-being. The main difficulty, unfortunately, in many diseases is our inability to cure quickly enough.—Stelwagon, Diseases of the Skin, Ed. 8, 1916.

THE ROENTGENOGRAPHIC DEMONSTRATION OF THE SUBDURAL SPACE

ITS SIGNIFICANCE IN THE DIAGNOSIS OF INTRASPINAL LESIONS *

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Despite accurate diagnostic methods and careful study, tumors and other lesions of the spinal canal are

Fig. 1.—Outline of the dorsolumbar part of the subdural space by collargol.

by no means always found, at operation, at the level to which the physical examination points. There is, besides, a definite group of cases in which the diagnosis of intraspinal tumor is considered probable and in which the operative findings are negative or indicate the existence of spinal sclerosis. Finally, the presence of multiple tumors, situated at different levels of the spinal cord, cannot be established with any certainty before operation. In other words, the most painstaking neurologic examination, as at present constituted, falls short not infrequently in the determination of the presence of a spinal tumor and of its level, and in the diagnosis of multiple tumors at different levels.

Fig. 2.—Outline of the cervicodorsal part of the subdural space.

As a result there are performed not a few unnecessary operations, or operations at incorrect levels. A method, therefore, was sought to aid in the accurate localization of all extradural, intradural or expanding intramedullary lesions— that is, of all lesions that encroach on the space occupied by the cerebrospinal fluid.

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The method, as worked out in animal experimentation (dogs), consists in lumbar puncture done under full ether anesthesia, the evacuation of from 2 to 3 c.c. of cerebrospinal fluid, and its replacement by an equal amount of 10 per cent. collargol solution introduced by gravity. Anteroposterior and lateral roentgenograms of the spine are then taken. The roentgenograms are striking and uniform in the delineation of the subdural space. Except in the cervical region, the lateral are much clearer than the anteroposterior pictures. The roentgenogram is that of a sharply outlined strip on each side of the spinal cord. These strips or columns represent, of course, the cylinder of collargol-impregnated cerebrospinal fluid surrounding the cord; the roentgenogram, having been taken "on the flat," brings out in relief the strip of fluid on each side of the cord. Stereoscopic pictures would give a more rounded effect.

It will be noted (Figs. 1, 2 and 3) that the shadows outlining the subdural space are remarkably smooth and uniform in the normal animal, presenting only

Fig. 3.—Outline of the lumbar subdural space, anteroposterior view.

slight variation in diameter at different levels of the cord. They are entirely free from any sharp indentations. If a foreign body (in imitation of a tumor or any other compressing lesion) is inserted either extradurally or intradurally, the collargol outline of the canal either stops abruptly or is sharply indented, depending on the size of the foreign body. For examples, Figures 4 and 5 were taken one week after laminectomy in the lower dorsal region and extradural implantation of a thin sliver of laminaria. The dog was reanesthetized and collargol instilled. As corroborated by subsequent dissection, the parallel columns of collargol begin to converge a short distance below the moderately swollen foreign body, and come to a point a few millimeters above its upper end.

Although not quite germane to the subject, a few observations of interest which appeared in the course of this work will be briefly noted: 1. Judging by the roentgenograms, the space occupied by cerebrospinal fluid posterior to the cord is normally wider than the anterior. If this exists in the human being it suggests

an explanation for the fact that most spinal tumors are found dorsal to the cord. 2. Collargol roentgenograms outline clearly not only the spinal cord proper but also the cauda equina. 3. The collargol solution was introduced by gravity with the dogs in the prone posture, and therefore was free to enter the cerebral subdural space in the absence of any artificial obstruction. As a result, striking outlines of the cerebral and cerebellar convolutions were obtained (Figs. 8 and 9).

Fig. 4.—Laminectomy in lower dorsal region and extradural insertion of foreign body (laminaria), before collargol injection.

4. It is remarkable to note how small a quantity of collargol solution—as little as 2 c.c.—is required to outline the entire cerebrospinal space.

The introduction of collargol into the subdural space of dogs was followed by shock and convulsions in several instances. Twice it appeared to be fatal; that is, the animals never recovered from ether anesthesia. It is true that, in human beings, the flow of collargol into the cerebral subdural space would be prevented by placing the patient in the sitting or reclining posture, and by holding the funnel containing the solution no higher than the second or third cervical spine. Nevertheless (and despite the fact that the

Fig. 5.—Collargol roentgenogram one week after extradural insertion of laminaria, revealing gradual narrowing of the subdural space and termination at the point indicated by the arrow; the outline of the cauda is indistinctly seen.

reports of its use in the treatment of meningitis do not suggest that it is dangerous) the intraspinal injection of collargol in human beings might be followed (as in the reported experiments) by serious manifestations and, therefore, cannot be advocated as a diagnostic procedure. In considering the application of the method to the human being it is certainly most desirable to employ a radioactive solution that gives greater likelihood of freedom from toxic or irritating effects. Thorium offers itself as such a solution. In the hands of Burns, who first described it is a substitute for collargol for roentgenography of the urinary

Fig. 6.—Lateral view of the effect of laminectomy and incision and suture of the dura, illustrating the use of the method for graphic study.

tract, and of others, thorium has proved free from irritating or toxic symptoms. The roentgenograms are as clear and as sharp as those following the introduction of collargol. The questions of strength of solution, amounts, the probability or improbability of well defined pictures in the thicker spinal canal of the human being, etc., will be the subject of further investigation.

Fig. 7.—Anteroposterior view of the effect of laminectomy and incision and suture of the dura.

It may be added that it is my belief that in the intraspinal injection of relatively nonirritating or nontoxic solutions or suspensions of metals such as thorium may be found a method of treatment of various intraspinal lesions not amenable to surgical therapy. If this

Fig. 8.—Outline of cerebral and cerebellar convolutions, lateral view.

should prove to be the case there would be a great added advantage in the Roentgen demonstration and consequent control of definite local applications of the substance to the site of the lesions. In any event, it is

conceivable that the solution of the drug to be introduced into the spinal canal for therapeutic purposes could be admixed with the thorium solution to determine if, and how, the drug in question reaches intraspinal lesions.

The roentgenographic demonstration of the subdural space offers the following possibilities:

1. Experimentally: (*a*) a graphic study of the entire subdural space and of the surface morphology of the brain and spinal cord; .nd (*b*) a graphic demonstration of the effect of various experimental procedures on the configuration of the brain or spinal cord.

2. In the human being: (*a*) the demonstration of the exact situation of any intradural or extradural lesion encroaching on the spinal cord, or of any expanding intramedullary lesion; (*b*) the demonstration of multiple intraspinal lesions; (*c*) the demonstration of the absence of any encroachment on the cord; (*d*) a study of the effects of various operative procedures on the spinal cord or canal; (*e*) demonstration of local therapeutic application of drugs to intraspinal lesions, and (*f*) a graphic study of the normal and abnormal surface anatomy of the brain and spinal cord in the cadaver.

Fig. 9.—Outline of cerebral and cerebellar convolutions, viewed from above; the subdural space is seen; the definition of the convolutions is more clearly seen in the negatives.

1275 Madison Avenue.

THE IMMUNE REACTION TO TUBERCULOUS INFECTION *

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One of the most important of Koch's observations revealed the fact that guinea-pigs already infected with tuberculosis respond to a second injection of tubercle bacilli quite differently than do normal guinea-pigs to a first injection. Following on this came the discovery that tuberculin produces an effect on diseased persons or animals which is different from that seen in the uninfected. These facts have led to the belief that the disease produces a constitutional alteration of such character as to modify the reaction of the organism to the causative agent or its products. To use the expression introduced by von Pirquet, the infected body becomes allergic. The cause of this alteration in reaction, in accordance with general conceptions derived from the study of immunity, is generally attributed to the production of specific antibodies. Such antibodies have been found in the blood in tuberculosis, and display various properties, such as agglutinative power, or complement binding capacity, when brought into contact with the tubercle bacillus or its derivatives. There is, therefore, some ground for the belief that circulating antibodies may be the

Fig. 1.—Reaction of uterus of tuberculous guinea-pig to 0.001 c.c. of tuberculin.

essential factors, not only in the general reactions, but also in such a specific local response as the tuberculin reaction of von Pirquet. Opposed to this conception is the fact that the allergic condition, the altered reactivity, cannot, according to most observers, be transferred from an infected to an uninfected animal by means of the transfer of blood.

The alternative belief has also been expressed, that the cells, and not the blood, carry the antibodies which are responsible for the altered reaction in tuberculosis. There is no direct experimental evidence in support of this theory. Bail,[1] indeed, by an indirect method, obtained results which he interpreted to mean that the cells possess antibodies, but his findings have not withstood the test of criticism.

In order to gain additional information, it seemed necessary to resort to methods different from those hitherto applied to the study of this problem. When tuberculin is injected intravenously, intraperitoneally or subcutaneously, into the living animal, it is evident that the resulting reaction may be due to substances

Fig. 2.—Reaction of uterus of normal guinea-pig to 0.3 c.c. of tuberculin. Histamin (at *H*) was added to test activity of muscle.

either in the cells or in the blood, or in both; nor is there any way of separating these factors in the living animal. If, however, a tissue is removed from the body, it is clear that the reaction of the cells may be studied quite independently of that of the circulating fluids. In anaphylactic investigations, it is customary to employ this device by removing the uterus of the

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1. Bail: Ztschr. f. Immunitätsforsch., 1909-1910, 4, 409.

sensitized animal, suspending it in some suitable solution, such as Locke's fluid, and then determining the effect of the antigenic substance on its muscular contractions. It has been regularly found that the antigen in minute amounts stimulates a prompt and violent response of the muscle, whereas the normal uterus fails to manifest any effect whatever. A permanent record is obtained by registering the uterine contractions by means of a writing lever on a revolving drum. The present paper reports on the application of this method to the study of guinea-pigs infected with tuberculosis.

Without entering into a detailed discussion of the technic and of the data obtained, it may be stated that the uterus of an infected guinea-pig at some stage of the disease quite frequently presents a distinct contractile response to tuberculin in amounts which are without effect on the normal organ. The reaction is prompt and sharp, exactly as in the anaphylactic experiment. The accompanying tracings illustrate the striking difference between the normal and the tuberculous animals. The first tracing shows the effect of 0.001 c.c. of old tuberculin[2] on the uterus of a guinea-pig infected nine weeks previously with tuberculous sputum. The second tracing shows the effect of 0.3 c.c. of the same tuberculin on a normal uterus. It is quite evident that the former presents a prompt, pronounced, and prolonged contractile response, whereas the latter indicates only slight, if any, effect on the muscular tone. The dose of tuberculin was 300 times greater in the latter experiment. Not in every instance do tuberculous guinea-pigs possess a uterus which responds to tuberculin in this degree of dilution; but the normal organ practically never responds in this manner to less than 0.1 c.c. Thus it is clear that the uterine muscle cells of the diseased animals have a tendency to react in a characteristic and unmistakable fashion to tuberculin, and may therefore be said to be sensitized thereto.

If these results are interpreted in accordance with the data obtained in the past few years from the general study of anaphylaxis, they permit of certain definite inferences. In the first place, it may be assumed that the specific response in tuberculosis, as in serum anaphylaxis, is due to the presence of those substances described as antibodies. On the basis of this assumption, it is clear that these antibodies must be considered to be cellular, or "sessile," since it is only on this theory that the response of the isolated organ can be explained. It is not to be supposed that the uterine cells are the only ones of the body which contain the specific antibodies. In fact, it is highly probable that many, if not all of the tissues of the body are similarly altered by tuberculous infection, although the methods at present available do not permit of a demonstration of this fact. If this be the case, it seems highly probable that the various types of altered reaction referred to in the introductory paragraph of this paper, whether local or general, are to be explained on the basis of cellular sensitization to the agent of the disease and to its products. The details of the mechanism of these reactions, as well as of the partial immunity of the infected animal, will, perhaps, be found to correspond to analogous conditions in general anaphylaxis.

1000 Park Avenue.

2. Obtained through the courtesy of the Research Laboratories of the New York City Board of Health.

THE EFFECT OF SOAP ON TREPONEMA PALLIDUM

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I believe it is generally recognized that extragenital lesions obtained innocently through the barber's manipulations or utensils are of relatively rare occurrence. As to the incidence of other infections contracted from this source, I am not prepared to say. The preventive measures which the average barber employs are not such as should disturb the equanimity of the ordinary domesticated bacterium or spirochete. Even admitting that the organism of syphilis has but little resistance, there would seem, at first sight, many loopholes which this squirming, wriggling organism might take advantage of.

Zinsser and Hopkins[1] have shown that the *Treponema pallidum* may live eleven and one-half hours on wet towels exposed to room temperature and daylight. In a slide prepared for dark field examination and kept under somewhat similar conditions (room temperature and daylight), motility will persist for a number of hours.

Testicular juice rich in treponemata was obtained, according to the method given in a previous article,[2] from rabbits having fresh experimental lesions of the testicle. Only specimens containing from ten to twenty-five organisms to a field were used in this work. A solution of soap was prepared in distilled water, as strong as possible without solidification on cooling. (Ivory soap was first used but later discarded for the more nearly sterile shaving creams which come in the collapsible tubes. Of the latter preparations, both Johnson's and Colgate's were employed. No difference could be observed in the results obtained from any one of the three soaps.) Equal parts of testicular juice and soap solution were then quickly and thoroughly mixed and placed in focus on the dark field. For this, from fifteen to thirty seconds was required. In no case was I able to find a motile spirochete. Rarely were there more than one or two in a field, and frequently none, and those present rapidly disappeared. Those found were usually swollen and distorted out of their normal shape except in some cases in which they seemed to be adherent to the glass.

Three controls were made: the undiluted testicular juice, a mixture of equal parts of testicular juice and physiologic sodium chlorid solution, and a mixture of equal parts of testicular juice and sterile distilled water or tap water. In neither of the latter two was there any immediate appreciable effect, and in both mixtures motility could be observed for at least four hours while exposed to room temperature and daylight. In another series the soap solution was prepared in physiologic sodium chlorid solution, but the effect on the organisms was apparently identical with the distilled or tap water solutions.

In order to see if possible what had taken place, slides were prepared of the same testicular juice or serum, and while they were under observation in the dark field, soap solution was allowed to run in from the side. The resulting currents prevented much continu-

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1. Zinsser, Hans, and Hopkins, J. G.: The Viability of the Spirochaeta Pallida in Diffuse Light at Room Temperature, THE JOURNAL A. M. A., June 6, 1914, pp. 1802-1803.

2. Reasoner, M. A.: Some Phases of Experimental Syphilis, THE JOURNAL A. M. A., Dec. 16, 1916, pp. 1799-1805.

ous observation of any one organism unless attached to something. Those coming into contact with the stronger soap solution lost their motility at once, and became swollen and distorted and much reduced in number. Those nearer the center of the cover glass which received only the attenuated solution, as shown by the absence of marked currents, became unusually restless, writhing and twisting and apparently trying to tie themselves in knots or, as one of my confrères expressed it, "acting as if they had the colic." Of those exposed to the action of the diluted soap solution, some became swollen and distorted while motion persisted, and others retained almost their normal contour. Farther in, where the soap dilution had not penetrated, the normal contour and motion were retained.

For purposes of comparison, the same experiment was carried out, a solution of mercuric chlorid (1:1,000) being used. Following a mixture of equal parts of the mercuric chlorid solution and testicular juice, no motile organisms could be found. There was not so much reduction in the number of organisms or so much swelling and distortion. They became granular and straightened out, and settled to the bottom. After the lapse of half an hour, they could be recognized as a sort of a granular straight line, but were fewer in number. When the solution was allowed to float in from the side, the organisms seemed to die more quickly throughout the slide, as one would expect, but did not evince the same symptoms of distress as with the soap solution.

The results of these experiments were sufficient to convince me that the organisms of syphilis will not live in the presence of a solution of soap of even a considerable degree of dilution, and that a lather, such as used in shaving, is sufficient, when brought in contact, to cause their immediate death. It is possible that some of the initial lesions on the face which have been ascribed to the barber may have been transmitted by a towel wet only in water, which towel has served to convey the infection from another patron or perhaps the barber himself. Another possibility is that the person, immediately after shaving and while still having many minute abrasions on the face, has submitted himself to osculatory salutes from an infected prostitute. It would seem that a solution of soap or lather, such as is used in shaving, should have some value as a prophylactic measure against syphilis, but, probably for several reasons, not equivalent to the mercurial preparations now in use.

State Commission's Physical Training Program.—The military commission appointed by the New York legislature for physical training in the public schools, composed of Major-Gen. John F. O'Ryan; State Commissioner of Education John H. Finley and Dr. George H. Fisher, secretary of the physical department of the Y. M. C. A. International Committee, has reported a constructive program of health education. A trained man as supervisor of physical training in every town of 5,000 or more, and in every union free school district, with supervised recreation, and the encouragement of health habits are some of the features of the plan. A syllabus on physical training has been prepared and sent to school superintendents and teachers throughout the state. It provides for daily medical inspections by the teachers for the most elementary classes, and sixty minutes a week gymnastic drill for more advanced classes. The physical work for lower classes is in the form of a two-minute setting up drill at the beginning of each class period. The recreational requirements are four hours a week, one under the supervision of school officials and the other three by equivalents in home or community activities.

SOME HOSPITAL PROBLEMS *

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The investigation and classification of hospitals, as now proposed by several agencies, is important, and promises good for both medicine and surgery.

Never have there been so many good surgeons as now, never has surgery been so well done, never have the results been more brilliant. It would be equally true to say that never has there been so much ill advised operative interference, with such disastrous results, as now.

Of the factors which make for good surgery, the modern, well equipped, well managed hospital takes first rank. Here is found every aid and incentive to better and yet better work; but well equipped as it may be in things material, the hospital which places its wards and its operating rooms at the disposal of all alike is a menace to the community. I refer to the open hospital as usually conducted in communities of from 3,000 to 100,000 inhabitants. Any criticism or suggestion I may make will be confined to such hospitals and will not refer to large city hospitals or to hospitals connected with medical schools. The open hospitals permit any practitioner to assume the gravest responsibilities within their walls, place their facilities at his disposal, and even provide him with a camera obscura which protects both him and the hospital from criticism and, too often, from well merited censure.

While it is true that the internist must face the most difficult and perplexing problems, yet there will always remain this difference between the internist and the surgeon: The internist's sins are those of omission, while the surgeon's sins too often are the sins of commission. Of the good done by surgery, I shall say nothing. Of the harm done in the name of surgery, there is no need to say much. How often we have listened to the story of repeated operations, the first perhaps poorly done, or wide of the mark, with a progressive aggravation of symptoms! We have all heard of the young married woman whose pelvis has been "cleaned out" by some operator. The open hospital is responsible for most of such work done in the name of surgery. I know of such a hospital with fifty beds, to the wards and operating rooms of which a hundred general practitioners of medicine have the privilege of bringing their patients. My informant reported this particular hospital as a closed hospital. When asked to name one physician within a radius of 25 miles who is denied the privileges of the hospital, he was unable to do so. He compromised by insisting that the hospital is not wide open, although he did not explain how it could be opened wider. That all the physicians in a given community are doing good work, within or without a hospital, is not claimed by any one.

THE STAFF

It has been said that "the staff makes the hospital," or, "as is the staff, so is the hospital." While practically true, these statements do not apply to the open hospital, because most open hospitals either have no staff at all, or have a nominal staff which meets "once in ten years," or "when a row is on." The great characteristic of the usual open hospital staff is an all pervading inertia, the most effective barrier to progress,

* President's address, read before the Western Surgical Association, St. Paul, Dec. 15-16, 1916.

and an utter failure to grasp the prime function of a hospital staff.

As I said in a former paper, written after investigating the hospital situation in a midwestern state: What is the chief function of a hospital staff? "The answer is very simple. The chief function of a hospital is to educate itself, individually and collectively, better to discharge the duties and obligations incurred by its members in accepting staff appointments. To serve its purpose, a staff must hold frequent meetings, at which not only hospital problems, but more especially medical problems must be discussed. Interesting cases must be presented for consideration. As failures are often more instructive than successes, these should be reported for free discussion. It is especially important that the causes of 'accidents' be thoroughly investigated and the responsibility fixed. Staff members should make frequent visits to medical centers, and every member making such a visit should present whatever is worthy for the benefit of his fellows. The operating room should be open to staff members and assistants at all times, and all operations should be bulletined. A weekly staff conference should be the rule in every hospital. As many members as possible should be invited to study interesting cases in the wards. Necropsies should be bulletined, and pathologic specimens carefully studied. In this way the experience of each staff member will become larger. It might be well for the staff to organize itself into a current medical literature club, the better to keep abreast of the times, and also to have its members present synthetic reviews on various topics, thus taking an active part in medical society work. With the improvement of the staff individually and collectively as the prime motive in staff organization, increased staff and hospital efficiency, and better service to the patient will be sure to come."

All this may seem elementary to those connected with great teaching and research hospitals, yet I failed to find one open hospital in the Middle West in which the staff either realized its opportunities or profited by them, along the lines suggested. Real progress will not be possible in these hospitals until staff members realize their delinquency, and become fired with a desire and an ambition to improve themselves. To feel the spirit of progress, and to feel the need of improvement are the all important first steps which will lead to better things. Unfortunately, this spirit is still unborn in the great majority of open hospitals in the Middle West.

ROENTGENOLOGIC AND LABORATORY SERVICE

The introduction of a good Roentgen-ray apparatus, and the establishment of clinical laboratories have acted as soporifics rather than as stimulants. It matters not that the ambitious operator reads into roentgenograms, even in bone cases, whatever his fancy may suggest; or that the laboratory reports are amateurish, or their interpretation anything but correct. Only recently I heard the president of a county medical society, in his retiring address, say, "With the x-ray and the laboratory, we are all equal; all of us can do our own work; consultants are no longer necessary."

Nothing can be hoped from men who blindly follow laboratory diagnoses instead of doing independent thinking. The day has not yet arrived, and never will arrive, when the Roentgen ray and the laboratory will make all men equal.

THE PUBLIC AND THE OPEN HOSPITAL

The evils of the open hospital of today do not appear to be self limited; there is no promise that they will be corrected from within; their eradication seems to demand some powerful influence from without. Publicity is the only efficient weapon. Once fully cognizant of the relative merit of different available hospitals, the public will make its influence sharply felt, to the advantage of the better hospital. If the hospitals of a given community are not high grade, the sick of that community, whenever possible, will seek relief in better hospitals, wherever they may be.

Evidence that the public is taking notice is furnished by the situation in one Middle West community: A religious organization built a hospital, accepting contributions from nearby practitioners, with the distinct understanding, it is said, that the hospital would be open to all physicians for the care and treatment of patients. One of the contributing practitioners, again, "it is said," made a contribution so much larger than any of the others that he was elected surgeon to the hospital. The surgical patients of the other practitioners were not accepted unless the hospital surgeon assisted at the operation, and received half of the fee. The hospital management, appealed to by the disconcerted practitioners, sustained the hospital surgeon. The courts will now be asked to decide whether a hospital board, after accepting contributions with the understanding that all practitioners be accorded equal privileges, may select one man to do all the surgery.

A successful hospital in one of the old middle states pays its surgeon a fixed salary; he resides in the hospital, and does all the general surgery.

THE RESTRICTED HOSPITAL

These two instances are the antitheses of the open hospital. Closed hospitals may be undemocratic, they may not promise the best for either the profession at large or for the general public; but somewhere between them and the wide open hospital there will be found a plan which will give every properly trained and right minded man an opportunity to work out his destiny, and which will protect the community. The open hospital must be transformed into a restricted hospital, and by a method that is fair — such a one as this: When a properly trained but untried licensed practitioner asks to use the operating room, the answer will be: "Yes, but like every other man operating in this house, you will bulletin your operation the evening before. The superintendent of the hospital and one or more staff members may be present. You are on trial, but so long as you have any privileges here, you will have all the privileges. You are welcome in the operating room when others operate, and at the weekly staff conferences. If your work is satisfactory, you may come again, and after a few years you may be elected to staff membership. But if your work is not satisfactory, why, we shall regretfully inform you that we have no unoccupied beds. This is not a closed hospital, but it is a restricted hospital."

I believe that the remedy is in sight, and that the next few years will witness much better work done in the type of hospital under consideration. The agencies which will bring about the desired change are several. As stated above, publicity is the most efficient weapon. A hospital management or a hospital staff which fails to react to ordinary stimuli will promptly take notice when the standing of the hospital in the community is menaced. Investigation and classification of hospitals,

as planned by the American College of Surgeons, promises splendid results. I know that even the possibility of such action by the college has been productive of good.

THE HOSPITAL FIFTH YEAR

Another agency which cannot fail to make its influence felt, perhaps even more sharply than the American College of Surgeons, is the hospital fifth year, soon to be required by both medical schools and state examining boards. Minnesota, Pennsylvania, New Jersey, North Dakota, Illinois and Rhode Island have already taken definite action. The hospital fifth year not only will have a beneficent influence on the candidate for the degree and for the state license, but also will make it necessary for both medical schools and state boards to know whether or not the work done in a given hospital entitles it to recognition. The schools and the state boards must investigate the hospitals seeking interns. These keen-eyed young interns will report back to the medical school, and, possibly, to the state board. Their influence on the hospital will be most salutary.

THE NURSES' TRAINING SCHOOLS

Many hospitals, however, do not employ interns, and these will not be influenced by the hospital fifth year, or by the medical schools. The American College of Surgeons can reach them, but there is one other opening which will enable state boards to investigate and largely control them. All of these hospitals have training schools, and every graduate of the training school must present herself before the state board for examination, to secure her certificate of registration. This gives the board the opportunity and the right to acquaint itself with the work done in the school, to know whether the young women seeking recognition have been properly instructed, or whether they have been chiefly useful as revenue producers, by being assigned as special nurses to private patients, at 15 or 20 dollars per week, and this while still on probation. I have known this to be done, not once but repeatedly. I have known a young woman to write her parents during the third month of her training, while still a probationer, that she was getting along famously, having been assigned to "special" duty, and all this in a hospital pretending skilled service to the sick, but really conducting its training school for revenue.

I should like to say, "As is the training school, so is the hospital," because a good training school in a poor hospital is unthinkable, and the converse holds equally true. The state boards cannot classify hospitals, because the friends of a discredited hospital would immediately rise in arms, would term the action of the board arbitrary and unfair, and would soon set in motion political machinery embarrassing to the board, or to those members of the board considered responsible. But the board can inspect the training school, and carefully examine all applicants for state license. Should candidates be sent back for three or six months' additional preparation, neither the hospital itself nor its friends could protest without directing attention to the shortcomings of the training school.

It sometimes happens that a young woman, early in her course in training, comes to a realization of the fact that the instruction she is receiving is far from satisfactory. Let her try to gain admission to some other school, even if willing to forfeit the time already spent in training, and she will apply to many before attaining her object, if she succeeds at all. She will be requested to present a satisfactory certificate from the head of the school in which she is a pupil, and begin again as a probationer. The second requirement is not so objectionable; in fact, in many cases it is entirely reasonable; but an "honorable discharge" is not always to be had for the asking. The candidate for admission to the training school is on trial for three months, and at the end of this time she may be received or may be sent away. Would it not be fair that she be given a certificate at this time, stating that her probationary period has been satisfactory, and be granted the option to remain or to seek training elsewhere? These credentials might not be accepted by other schools; but they would be equivalent to an "honorable discharge," and enable her to enter another school without being required to ask her principal for a certificate of character and class standing, difficult to obtain should work be crowding and nurses none too plenty, or an exodus of nurses feared. More likely, she would be branded as a disloyal discontent, and the desired credentials refused. To be accused of disloyalty and discontent covers a multitude of virtues, in a training school pupil.

It is manifestly unfair to compel an inexperienced but intelligent young woman to spend three years in an inferior school just because she made a poor selection at the outset. The present arrangement is much in favor of the poorer hospitals and poorer schools. Their pupil nurses simply cannot get away, even when willing to forfeit all the time already spent in training. At my request, a young woman wrote twenty-five letters to as many different hospital training schools, asking for admission, and stating that she had spent one year in a local school, but that she felt she was not receiving the training she desired. Twenty-five replies were received, but not one school would accept her. The usual answers were, "We do not accept pupils from other schools," "We will not consider your application at all so long as you are in another school," or "You must first secure an honorable discharge from the school you are now attending." In no school would there be a vacancy for months. She had started wrong, and there was nothing to do but remain where she said she had begun. Only a few days ago, a hospital director, a physician, expressed himself thus on this point: "The record and standing of every nurse ought to be in writing, and given her whenever desired. As matters now stand, the intelligent, ambitious girl who comes to a realization of the fact that the training she is receiving is very inferior will not be received by another school, as the necessary papers will most likely be denied her, especially if other trainers are apt to follow."

In this great democratic country of ours, only the young woman in a training school is subjected to such thraldom. It is not fair. Of all women, none are quite so helpless as the pupil in a training school. Of all women, few are more autocratic, few more relentless, than the average head of the training school. It is time that a more liberal spirit should make itself felt in behalf of the young woman in training. The American Hospital Association might well consider this matter.

CONCLUSION

The investigation and classification of hospitals by the American College of Surgeons, by medical schools and by state boards, and the careful investigation of training schools by state boards are the agencies which will make for better service in hospitals.

To the foregoing there must be added a wholesome sentiment inculcated by leading medical men. Recently, in a Chicago clinic, I heard a refreshing statement by the teacher, who said: "We do not want our graduates to consider themselves specialists, we do not care to have them know how to do a given operation, but we want them to recognize surgical conditions, we want them to know how to make a diagnosis. If they wish to be surgeons, we want them to take additional training." There is a world of promise in words such as these. Young men taught in this manner must have a finer conception of their responsibilities.

In regard to the education of the surgeon, I wish to endorse all that has been said by Finney, Haggard, Jackson, and others; but I wish to emphasize especially conscience and honesty — not that these two essential attributes have been passed over lightly by any of the gentlemen named, but because they cannot be mentioned too often. No matter what his professional qualifications, the surgeon without conscience and honesty is poor, indeed.

TORSION OF THE OMENTUM

REPORT OF CASE

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I was called in consultation by Dr. G. M. Austin, Sept. 1, 1916, and from him obtained the subjoined history:

"W. H. J., man, aged 66, married, laborer, was taken sick, three days before, with nausea and vomiting. When walking he had a cramplike pain in the midline below the umbilicus, which lasted part of the morning and then became general, but was more acute on the sides than in the epigastric region. On the next day the patient still had pains in the flanks and vomited mucus. The temperature was 102 F.; the pulse was 85; the face was flushed. At 3 p. m. there was no tenderness over the stomach, but it seemed a little more tender over the region of the appendix. That night he obtained some rest from Dover's powders. Headache and severe backache were two prominent symptoms."

On examination, I found the patient's abdomen distended with gas, and, in the region of McBurney's point, considerable pain and tenderness. On palpation I was able definitely to localize a tumor mass in the right side anterior to the kidney and extending down to the appendix region. The bowels had moved earlier in the morning from a purgative saline. The patient was prostrated and had the appearance of a man in a desperate condition.

The patient stated that he had had the usual diseases of childhood. Twenty years ago, while working as an off-bearer in a saw-mill he had been seized with a sudden pain in the abdomen, accompanied with gaseous distention. The attack lasted a week. He had had an attack of pneumonia five years ago. For the last five years or more, the patient had not been well. In the region of the appendix there had been more or less pain, uneasiness and a bound down sensation. He never had had any attacks simulating acute appendicitis. For the last two months there had been a pain in the region of the right kidney, posteriorly. It was quite severe at times and no relief was obtained by lying down. The patient complained of a sudden sharp pain in the right hip which was relieved when he assumed the recumbent position. He stated that these pains did not affect his appetite, nor was he constipated. His wife informed me that for more than a year his bowels had been too loose. The patient had not done two days' work during the past five years. He had been a moderate user of tobacco, whisky and beer for years, but was not a drug addict. The family history had no bearing on the case.

The patient was fairly well nourished, but the muscles were flabby from inaction. He was 5 feet, 7¾ inches tall and weighed 156 pounds. The skin was clear and no bodily deformities were present. The nervous, cardiovascular and renal system and the special senses, for all practical purposes, were negative. The pin test revealed a hyperemia over the region of the appendix, but not hyperesthesia. Our diagnosis was acute appendicitis. We advised immediate operation, to which the patient promptly consented. Not being willing to go to the hospital, we were compelled to operate on him at his home. While taking the anesthetic he passed great quantities of gas from the bowels.

Operation and Result.—An incision was made over McBurney's point and through the sheath of the rectus parallel to the muscle fibers. The outer margin of the muscle was freed and retracted inward and the tissues beneath it incised. A small quantity of straw colored fluid escaped from the abdomen.

Next the appendix was drawn up through the incision which showed that our diagnosis was wrong; the trouble was not in the appendix. Passing two fingers upward and backward, I encountered the tumor mass which was felt before operation. I could not get my fingers under the mass or find a line of cleavage, as can be done with an abscess in this region. For exploratory purposes, therefore, the incision was enlarged upward and I was then able to get my fingers in and beneath the tumor mass.

The cecum was attached firmly to the abdominal wall as far inward as the incision through the peritoneum. The mass was wedged between the ascending colon, parietal wall and the attached cecum below. It separated easily and gave a peculiar crepitant sensation to the examining fingers. At first I thought that I had encountered a hypernephroma; but as it was withdrawn it was observed to be a strangulated portion of the great omentum. The strangulation was certainly due to torsion, as there was simply a wide open mouth at the top of the pocket in which the strangulated portion was found. The omentum was twisted contraclockwise six times. The twist was evidently due to the peristaltic action of the ascending and perhaps also of the transverse colon. The strangulated mass was dark, and no doubt in a short time would have become gangrenous. The rest of the abdominal viscera was negative. The wound was closed in the usual way and the patient made an uneventful recovery.

COMMENT

Torsion of the omentum is comparatively rare. Nearly all the reported cases have been associated with inguinal hernia.

In this case the omentum occupied a pocket above an adherent cecum, and as a result of peristaltic action of the ascending colon, the accessory omentum became strangulated by torsion.

The use of Battle's incision should be generally employed in appendix work in order to avoid injuring a cecum attached to the anterior parietal wall.

Torsion of the omentum has never been diagnosed before operation. This shows the need of more reliable methods of diagnosis of abdominal troubles.

Sources of Milk Infection and Typhoid.—Milk supplies are, in general, exposed to typhoid infection in proportion as they are exposed to contamination with human discharges, and in proportion as these discharges are likely to contain typhoid bacilli. Other things being equal, the likelihood that typhoid bacilli may be present in some of the discharges with which a milk supply may become contaminated is proportionate to the number of persons in dangerous contact with the milk supply. We may consider as in dangerous contact not only those persons who actually handle the milk, but all whose discharges might in any way infect the supply.—W. H. Frost, M.D., *Public Health Report*, Dec. 1, 1916.

A MILK-BORNE EPIDEMIC OF TYPHOID FEVER DUE TO THE USE OF POLLUTED WATER

WITH FIVE FAILURES OF TYPHOID IMMUNIZATION

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An explosive outbreak of twenty-three cases of typhoid fever directly traceable to a milk supply occurred in Colusa, Calif., in May, 1915. The interesting factors were:

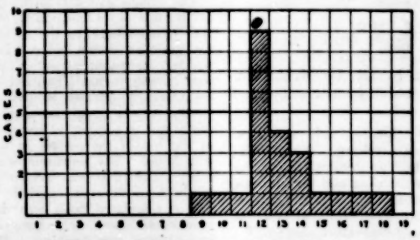
1. The small number of cases, twenty-three, considering the large number of persons exposed to infection, 643.

2. That of the cases, 70 per cent. were in children, one 13 months and two 16 months of age.

3. The failure of typhoid vaccine to protect completely five persons exposed, four of whom were children, the average age being 9 years.

THE OUTBREAK

In the first case reported, symptoms were noted, May 9. The maximum number of cases occurred, May 12, and the last case, May 18. There were no deaths, and the mildness of the disease was striking in the vaccinated persons. Eighteen cases in this epidemic gave positive microscopic Widal reactions, and in the remainder agglutination was complete with motility present. These were frank clinical cases of typhoid.



Incubation period and occurrence of cases; May 1 is probable date of infection of milk supply.

Epidemiology.—The city of Colusa is supplied by two dairies, but all the typhoid patients, as stated by the health officer, Dr. C. A. Poage, and later verified, obtained their supply from one. Investigation showed that the entire milk supply of this dairy was distributed solely through a substation separated by miles from the dairy proper. The dairy itself was of a type far better than the usual rule of dairies in like rural communities. There were two milkers employed, one of whom gave a history of having had typhoid four years previous to the outbreak. He had been employed as a milker for three years in this dairy. Repeated examination of urine and feces from this man as well as the other were negative. His blood, microscopically and macroscopically, failed to agglutinate a known highly agglutinable strain of the typhoid bacillus. The water supply checked bacteriologically was also negative. Investigation of the substation acting as the sole distributor for the parent dairy revealed some interesting data. All bottles and containers were cleaned and filled there, the work being done by one man. Examination of the urine, feces and blood of this man were completely negative for typhoid. The water supply of the substation consisted of a dug well from 20 to 30 feet deep situated in a yard near a lot about 25 feet from an open privy of easy access to the public, on practically the same ground level. Bacteriologic examination showed this water to be dangerously polluted. Though all milk bottles and containers were first washed in the well water heated to a variable degree, they were subsequently rinsed in water direct from the well and in most instances filled with milk without any previous draining. Further inquiries have proved this method of washing containers to be the rule on most dairies seen, the theory being that cold water used after warm enables them to obtain clear glassware.

AGES OF PATIENTS

Age	Number of Cases
Thirteen months	1
Sixteen months	2
Six years	4
Seven years	2
Eight years	1
Nine years	2
Eleven years	1
Twelve years	4
Seventeen years	1
Eighteen years	1
Over twenty years	4

The probable date of the infection of the milk supply was on or about May 1. This opinion is based on the fact that one of the families in which cases occurred ceased to take milk from the dairy at that time.

Vaccine Failures.—Of the large number of persons exposed to infection, only seventeen had been previously vaccinated against typhoid. In five of these so inoculated within a year, the vaccine used, the Gay-Claypole sensitized sediment suspension manufactured by the California State Board of Health, failed to protect. It was of great interest to note the extreme mildness of the attack in those vaccinated. The question as to why typhoid vaccine does not always protect seems to be a matter of conjecture. When one considers that four of the five failures were in children averaging 9 years of age, one could easily from these cases question the dose splitting of vaccine immunization according to age. It is my opinion that children should receive adult doses. In the administration of the preventive Pasteur treatment for rabies in the state hygienic laboratory, it has been my invariable rule to give adult doses to children bitten, with seemingly good results.

Other reasons for failures may be that in some persons the number of doses is not sufficient to immunize, and the time limit usually set before further vaccination entirely too long.

COMMENT

The origin of the infection of the cases in this epidemic was the milk produced by a dairy and distributed through a substation, the infection occurring on the premises of the latter owing to the use of cold polluted water in rinsing utensils and glassware. No evidence was obtained which showed that the infection came from a typhoid carrier, but the evidence does not entirely rule out this possibility, as carriers are usually intermittent.

Cleansing of milk bottles with water which has not been bacteriologically examined should be condemned, and it is obvious from this epidemic that a safe milk

supply can never be obtained without direct bacteriologic supervision of dairy water supplies.

Again, this epidemic points out the crying need of commercial pasteurization properly supervised and carried out. The Richmond epidemic[1] was an overwhelming argument for pasteurization as a logical safe procedure. There is no doubt that a bacterial count as a standard for the cleanliness and sale of milk is insufficient protection against such outbreaks as this. The sense of security a low count gives is fallacious when one considers the many pathogenic organisms which may be present in milk and yet not demonstrable in a bacterial count alone.

Ordinarily, a milk epidemic is explosive in its outbreak, as this was, the infection being carried to all users of a given supply at practically the same time, thus causing a relatively large number of them to develop the disease simultaneously. Usually, in epidemics of this type, the number of cases is large; but the approximate opposite occurred here. Only a small proportion of the users of the infected milk developed the disease.

The sudden concentration of the contamination of the water with typhoid, as demonstrated by the evidently infinitesimal quantities of the infected water left after rinsing, and the consequent possible escape from infection by a large number of bottles may account for the small number of cases.

Taking into consideration the report[2] of the California State Board of Health on typhoid fever in California for 1909-1914, the average annual death rate per hundred thousand from typhoid in Colusa County was 64.7, the highest average county rate in the state. The state rate as a whole for this period was 11.1. This milk-borne epidemic is the first recorded in this county, and the influence of milk as a disseminator of typhoid, as shown by this small outbreak, would not seem to affect to any appreciable extent the total typhoid incidence, yet it demonstrates fully the potential danger of milk and adds another argument to the propaganda for better supervision of milk supplies.

SPOROTRICHOSIS: REPORT OF A CASE

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Pathologist, the Walker Hospital

R. L. Sutton, who has probably seen more cases of sporotrichosis in this country than any other person, says: "There are many busy practitioners who have never even heard of sporotrichosis. For this reason, I believe that all recognized cases of the affection should be reported, during the next few years at least, in order to disseminate as widely as possible a knowledge of its characteristic symptomatology." With this idea in view, I wish to put the following case on record, the third, I believe, which has been reported from this state:

W. B., man, aged 25, florist, came under observation, Aug. 5, 1914. May 31, 1914, he punctured his left thumb with a rosethorn. Some time afterward the thumb became sore and inflamed, and some pus was evacuated from it. About two weeks after this, soreness developed in the left axilla and he had great difficulty in raising the arm on account of the stiffness and pain. He consulted a physician at this time who considered the pain to be rheumatic. Soon after this, several hard nodules resembling boils, but only slightly painful, developed on the radial surface of the left forearm, and others continued to develop, so that when first seen there were more than twenty nodules extending from the thumb up the outer and anterior surfaces of the forearm, across the front of the bend of the elbow, and then along the inner aspect of the upper arm, thus following the course of the lymphatics from the thumb. The nodules varied in size from that of a pea to that of a large marble, they were dusky red, and tenderness was absent or slight, being most noticeable in the more recent nodules. Some were superficial and were located in the skin; others were in the subcutaneous tissue. In the region of the extensor tendons of the thumb, in the wrist, and in the region of the biceps tendon, considerable deep, diffuse induration was present. In view of the characteristic clinical picture, a tentative diagnosis of sporotrichosis was made, which was confirmed by further examination. At this time, one nodule near the middle of the upper arm presented slight fluctuation, and when it was incised, a small quantity of viscid, grayish-yellow pus was evacuated. Microscopic examination of this pus revealed no organisms of any kind, but cultures on plain agar and bouillon gave pure cultures of the sporothrix after about ten days. The cultures varied considerably, some showing mostly mycelium and others mostly spores. Subcultures from the primary cultures gave visible growth in a shorter period, in two or three days. Several nodules developed after the patient came under observation, and these were of a brighter red and were more painful than the older ones.

The sporothrix was also later obtained in pure culture from several other nodules, which softened and were incised.

The patient was given potassium iodid in 15 grain doses three times daily for three days. In the meantime there developed an acute urethritis with extension to the posterior urethra, and at his request the medicine was discontinued because he thought it increased the irritation in the urethra. He was then given hexamethylenamin, 7½ grains four times daily, and this was continued for several weeks. It is an interesting fact that the patient under this treatment made steady progress toward recovery, and in less than three weeks, recovery was complete. A number of the nodules underwent softening and spontaneous opening, followed by prompt healing, while others disappeared without softening.

1. Geiger, J. C., and Kelly, F. L.: Pasteurization of Milk Supplies as a Protection Against Typhoid Fever, THE JOURNAL A. M. A., Jan. 22, 1916, p. 263.
2. Monthly Bulletin, California State Board of Health, April, 1915.

REPORT OF VACCINATION EXPERIMENT AT STATE HOSPITAL FOR NERVOUS DISEASES, LITTLE ROCK, ARK.

C. W. GARRISON, M.D., LITTLE ROCK, ARK.
State Health Officer

As there has been some agitation in the state as to the method of vaccination, the following experiment was carried out at the State Hospital for Nervous Diseases, Little Rock, by the courtesy of E. P. Bledsoe, M.D., superintendent:

Twenty-five persons were selected who showed no evidence of previous successful vaccination, and, Nov. 16, 1916, oral vaccination, consisting of one tablet of vaccininum daily for seven days, was administered, this being the time purported to immunize by this method of vaccination. On the eighth day these twenty-five persons, excepting the one who developed smallpox while taking vaccininum, were vaccinated by scarification or the regular method of vaccination, with the following results:

Of the twelve persons vaccinated by Dr. C. A. Arkebauer, by scarification, there were ten positive and two negative; and of the twelve vaccinated by Dr. Pat Murphy, there were ten positive and two negative, and one person developed smallpox before all vaccininum tablets had been administered.

In the foregoing experiment Dr. Scott C. Runnells, Homeopath, of Little Rock, directed the administration of vaccininum. It may be seen that twenty out of the twenty-four persons purported to have been immunized by the oral, or vaccininum, method had successful vaccination by the scarification method subsequently. Consequently, this proves conclusively the inefficacy of the former method of vaccination.

The Author of the Mendelian Law.—Gregor Mendel, peasant boy, monk and abbot of Brunn, an experimental botanist whose work in his cloister garden laid the foundation of that exact knowledge of heredity which is new being extended in many directions, was born July 22, 1822. He died in 1882.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 913)

AMYLOID KIDNEY

The amyloid kidney was described as a separate entity by Rokitansky seventy-five years ago. It is now considered an amyloid degeneration occurring in chronic nephritis, particularly when the nephritis results from some chronic infection. It is found in the nephritis of chronic suppuration, and it may occur in tuberculosis of the lungs, bones and intestine, in syphilis, in malignant growths, and in some blood diseases, such as leukemia. The urine may remain normal in quantity or may be diminished. It is usually pale, of a specific gravity from 1.010 to 1.020, with large quantities of albumin, and the typical waxy looking hyaline casts.

ARTERIOSCLEROTIC KIDNEYS

In this form of nephritis the fine renal vessels show the characteristic changes of sclerosis. The kidney withers[94] as contrasted with granular kidney, the latter being caused by a slow irritative process, though both kinds of kidney trouble show focal distribution. In granular (contracted) kidney there is localized arteriosclerosis entirely separate from any general arteriosclerosis, while in senile (arteriosclerotic) kidney the disease of the kidney vessels is a part of the general arteriosclerosis. Senile kidney, though insufficient for added work, physical or dietary, and often insufficient in general infections, in ether anesthesia, and in other temporary conditions, may be entirely sufficient for a long time when the patient leads a calm, uneventful life.

It must be understood that the kidneys grow old with the rest of the body; hence a senile contracted kidney is not pathologic, unless it occurs at too early an age. This type of kidney is accompanied by slight albuminuria, casts, and often by a diminution in the amount of urine.

Numerous varieties of acute, subacute and chronic parenchymatous and diffuse nephritis may develop in senile kidneys, as they are very susceptible to infection. Elderly men whose kidneys may be only slightly impaired but in whom an enlarged prostate may cause damming back of the urine may suddenly develop uremia. Unless seriously contraindicated, such an enlarged prostate should be operated on, and life may thus be prolonged, even though the kidneys are arteriosclerotic.

EDEMA

In kidney disease the water and the solid constituents of the blood are more or less increased. The blood vessels being thus overfilled, the irritants in the blood stimulating the arterioles to contraction, and the heart becoming hypertrophied, the blood pressure rises. Eventually the increased permeability of the capillary walls causes the water and salts to be exuded into the surrounding tissues. The tissues most affected by such exudates are those in which the external or surrounding pressure is the least, that is, those which are most dilatable, and those situated where the circulation is the least forceful owing to the distance from the heart, or where the return circulation is sluggish. It has recently been shown by Underhill and others[95] that in chronic nephritis the blood vessel walls may not readily pass nutriment to the tissues or absorb waste products and water from the tissues.

It should be recognized that in circulatory disturbances of the kidney vessels, either central or local, edema of the kidney substance may occur, and that after death the kidneys may be heavy with this infiltration.

Fischer's acid theory of edema has not been generally accepted; consequently, the forced feeding of salt and alkali is not indicated. A large amount of sodium bicarbonate may produce edema by causing chlorid and water retention, especially when as much as 20 gm. or more a day of sodium carbonate are given. This fact has been noted when large amounts of alkali have been employed in diabetes.[96]

Pearce[97] showed that in uranium experimental nephritis the administration of much water caused edema, and that arsenic caused edema in chromate nephritis. He concluded that three factors operated in producing edema, namely, injured kidneys, vascular insufficiency, and too much water in the blood. Hess[98] reports, from a study in the medical clinic of Vienna, that injury to the blood vessels is an important factor in dropsy.

As far back as 1902, Hatcher and Sollmann[99] found that chlorids were greatly diminished or absent in the urine in infectious diseases, and of course were entirely absent in salt starvation. The disappearance of the chlorids from the urine does not cause any great change in the other urinary constituents. They believe retention of chlorids in infection shows that the body requires more sodium chlorid than it is receiving from the diet; hence, as the patient should receive about 15 gm. a day, they suggest the addition of salt in a nearly salt-free diet, such as a milk diet.

An insufficient salt diet such as is so frequently employed during fever, causes a resorption of chlorids from the tissues into the blood. As Sollmann and others have shown that sodium sulphate injected intravenously causes a disappearance of the chlorids from the urine, cathartic salts, especially sulphates, apparently should not be given in edema or when circulation is poor. Serious consequences are frequent when such treatment is given in cardiac failure.

As previously stated, Fischer's theory of edema in nephritis has not been generally accepted, and the treatment he advises, based on his theory, may often be dangerous.[100] Some support of his treatment and some suggested limitations have been offered by Lowenburg.[101]

During health, and in fact during life, very slight changes in the reaction of tissues occur. To keep the blood alkaline, or better, "neutral," according to

94. Allbutt, C.: Brit. Med. Jour., April 15, 1911, p. 853.

95. Bogert, L. J.; Underhill, F. P., and Mendel, L. B.: Studies of the Permeability of Cellular Membranes, I, The Regulation of the Blood Volume After Injections of Saline Solutions, Am. Jour. Physiol., 1916, 41, 189; II, The Action of Saline-Colloidal Solutions upon the Regulation of Blood Volume, ibid., p. 219; III, The Influence of Alkaline-Saline Solutions upon Regulation of Blood Volume, ibid., p. 229.

96. Levison, L. A.: The Occurrence of Edema from Large Doses of Sodium Bicarbonate, THE JOURNAL A. M. A., Jan. 23, 1915, p. 326.

97. Pearce, R. M.: The Production of Edema, Arch. Int. Med., June, 1909, p. 422.

98. Hess: Ztschr. f. klin. Med., 1915, 82.

99. Hatcher and Sollmann: Am. Jour. Physiol., Dec. 1, 1902, pp. 139-154. Sollmann: Ibid., pp. 155-174.

100. Fischer, M. H.: The Treatment of Nephritis and Allied Conditions, THE JOURNAL A. M. A., May 31, 1913, p. 1682; Relation Between Chlorid Retention, Edema and "Acidosis," Jan. 23, 1915, p. 325.

101. Lowenburg, H.: Efficiency of Sodium Chlorid in the Therapeutics of Bright's Diseases, THE JOURNAL A. M. A., Nov. 24, 1914, p. 1906.

Adler and Blake,[102] the bases "chiefly bicarbonate and alkaline phosphate, must equalize the acid substances at all times. The function of the bases of the blood is to transport acid, and to help to maintain the proper concentration." If more acid were introduced into the system than could be neutralized, acid intoxication would result. The stronger the acid chemically, the more readily it combines with the base. Hence in certain pathologic conditions stronger acid than carbonic acid may be produced and attach itself to all the available base, so that this is insufficient to carry carbonic acid from the tissues to the lungs. Many serious symptoms result, culminating in coma, due to acidosis. This occurs typically in diabetes when beta-oxybutyric and diacetic acids develop. As not all the ammonia in acidosis is converted into urea, some of it directly neutralizes the extra acid, and the amount of this ammonia combined with acids excreted into the urine is an index of the degree of acid intoxication.

In edema caused by circulatory insufficiency the withholding of salt may not be beneficial, while the consumption of an added amount of salt, provided the ingestion of water is reduced to a minimum, may assist in removing the edema by increasing the water requirement of the blood. While in the edema of circulatory insufficiency the blood may thus be stimulated to pick up the transudates of liquid, in nephritic edema accompanied by inability of the kidneys to excrete salt, the addition of salt to the diet increases the edema; it must therefore be withheld in order that the circulation may gradually remove the exuded liquid. If the kidneys are able to throw off salt, no harm may be done by allowing the patient to have it, or by giving him more water.

The reason for diverse findings and reports concerning the advantages of a salt-free diet in edema is probably that in many instances there was circulatory disturbance and passive congestion of the kidney in which salt not only might not be detrimental, but in conjunction with digitalis might be of great benefit in removing the edema. However, in real nephritis with edema and high pressure, salt is injurious and water should be imbibed only in small quantities.

Physiologically, we need about 2 gm. of sodium chlorid daily to keep up the sodium chlorid equilibrium of the tissues. The greater portion of this substance is eliminated by the kidneys in from twenty-four to forty-eight hours, while the remainder is excreted by the skin, and intestines, and by tears. In most cases of real nephritis the salt excretion is retarded, and it may be greatly retarded. The rate of elimination may vary so that a period of retardation may be followed by a day or two of increased rapidity of excretion as the kidneys temporarily improve. Extensive retention of sodium chlorid is usually followed by edema, which lessens or disappears if the elimination of salt is again begun.

It has been shown that the bromin ion affinity is greater than the chlorin ion affinity; hence when bromids are administered during kidney insufficiency, the bromin may be excreted at the expense of the chlorin, the chlorids being retained. If the kidneys are seriously impaired, both chlorin and bromin may be retained.

It is self-evident that although edema in nephritis may not be entirely due to the inability to eliminate salt, a salt-free diet, for a short time at least, is distinctly advisable. If a salt-free diet is too long continued, the patient may suffer either from insufficient formation of hydrochloric acid in the stomach or from the lack of sodium chlorid in the tissues. Hence, after a period of salt-free diet, a small amount of sodium chlorid should be allowed daily, perhaps as much as 2 or 3 gm. Of course in nephritic edema the drinking of water should usually be restricted, even when the urine is scanty. When this precaution is taken, there will naturally be a loss in weight. A nephritic patient should be weighed frequently. If in spite of a limited diet and a limited ingestion of water the patient does not lose weight, an internal edema with retained sodium chlorid is the probable cause. Elimination of salt from the diet will reveal whether or not the ability of the kidneys to excrete salt may be improved; it may be that they will again excrete it in sufficient quantities and for a prolonged period, even in chronic nephritis. Bread should be made without salt; saltless butter should be used, as ordinary salted butter contains about 1 per cent. of sodium chlorid; fruits contain no salt; milk contains only a trace of salt; cheese is ordinarily salted, varying in amount up to nearly 3 per cent.; eggs contain only a trace of salt.

Magnus-Levy[102] states that muscle contains the least sodium chlorid of the body tissues, namely, 0.1 per cent. Connective tissue is the richest in sodium chlorid, and contains from 0.3 to 0.4 per cent. The entire body in a healthy man contains 130 gm. of salt, and the intake with an ordinary diet is from 15 to 20 gm. a day. If a normal person eliminates salt entirely from his diet, he generally loses weight.

Protein food requires more water in its metabolism and excretion than do other foodstuffs, but less food is consumed if water is not drunk with the meals. While a salt-free diet is most efficacious in diffuse nephritis with edema, it may also be of some value in edema of cardiac insufficiency, and in cirrhosis of the liver. Sometimes a large exudate, such as a pleuritic or peritoneal exudate, may be absorbed on a salt-free diet. Occasionally edema may not occur when sodium chlorid is retained.

(To be continued)

102. Adler, H. M., and Blake, Gerald: The Retention of Alkali by the Kidney with Special Reference to Acidosis, Arch. Int. Med., April, 1911, p. 479.

103. Magnus-Levy, A.: Dehydration by Dietetic Measures, THE JOURNAL A. M. A., Dec. 17, 1910, p. 2139.

Report of Harvard Cancer Commission.—The fourth annual report of the Huntington Memorial Hospital for Cancer Research and of the Laboratories of the Cancer Commission of Harvard University for 1915-1916 shows that the hospital and the commission are making the most of their present facilities. It is said, however, that in order to employ the full resources of the commission a new and separate laboratory building adjacent to the hospital, with accommodations for the departments of pathology, biophysics, biochemistry and genetics, and facilities for the outpatient department of the hospital, is sorely needed. A fund of at least $100,000 will be required for this purpose. The majority of patients referred to the hospital have inoperable or recurrent cancer and receive radium and Roentgen-ray treatment along with other palliative measures in the hopeless cases, though a larger number of cases than in previous years were given surgical operative treatment in the hospital. Patients with lymphoma, nevus, keloid, and many superficial lesions like keratosis, precursors of cancer in neglected cases, have also been treated with radium, of which the hospital now has 1 gram. A course for the training of laboratory nurses has been developed, one of the graduates being now with the Harvard Unit in France. A social service worker has been appointed and has rendered valuable assistance in the study of end-results in the patients who have been treated in the hospital.

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SATURDAY, MARCH 31, 1917

COMPENSATORY PROCESSES IN DELAYED GROWTH

The suppression of growth in the young is a phenomenon familiar to physicians. Attempts to cope with it frequently awaken a feeling of utter inability. Interference with growth may be due to a variety of causes, among which those of an inherited or congenital character usually represent the irremediable type. Not infrequently a retarded growth is merely the outcome of a temporary undernutrition brought about by disease; sometimes it represents the results of malnutrition through errors of diet chargeable to environment, poverty or human ignorance.

Experience shows that the detriment of a brief period of suspended or inadequate growth need not be permanent. With recuperation from disease or with a return to wholesome conditions of living a speedy restoration of size may follow, so that no permanent impairment of form or stature will remain. There has been some debate as to how long in the life cycle the ability of the organism to renew or complete its growth is retained. Obviously human data are not easy to secure in this field. At best they represent scattered statistical fragments of varying values. Extensive recent investigations on animals have clearly shown that the growth impulse, or capacity to grow, can be retained and exercised at periods far beyond the age at which growth ordinarily ceases. Osborne and Mendel[1] have found that even after prolonged periods of suppression of growth, full size may subsequently be attained without apparent impairment of the individual. In suitable cases the size or age at which the inhibition of growth is effected does not alter the capacity to resume growth. Even when the suppression of growth is attempted for long periods at a small size (body weight), the restoration may be adequate when a suitable diet is furnished. The period of growth may be greatly prolonged by inadequacies in the diet, so that growth becomes slow without being completely inhibited. Though the time of reaching full size is thus greatly delayed, growth, as expressed by suitable body weight, can ultimately be completed even during the course of long continued retardation.

The possibility remains that, in the course of suppressions and renewals of growth, disproportionate retardations or renewals in the development of individual organs may arise; so that although the body as a whole seems to recover from disturbances of growth, and stature and weight are apparently ultimately unaffected, nevertheless upsets in the normal correlations of tissue masses might arise. Stewart[2] has, indeed, pointed out that there are variations in the relative weight of different viscera during maintenance without growth. The weight of some is said even to increase under such conditions, presumably at the expense of others. We might well expect cellular or other permanent tissue rearrangements under such conditions. A lingering effect of these changes in certain organs might come about without any evidence of it in the gross form of the body. The compensatory processes of the organism, however, are far too perfect to permit a permanent maladjustment of its component structures. The latest experimental researches of Stewart[3] at the University of Minnesota show that the marked tendency of the body as a whole to recover its weight after a period of maintenance without growth is likewise characteristic of the various organs and parts. The abnormal proportions produced by underfeeding rapidly disappear on generous refeeding, so that practically normal relations are restored in most cases within a short time. The readjustment evidently involves a modification of the growth curves of many of the various organs and parts of the body during the early refeeding periods. Thus those organs and parts which lose weight during maintenance grow again more rapidly than the body as a whole, whereas those which gain weight during suppression of growth show a tendency to lag behind until the normal balance is restored.

1. Osborne, T. B., and Mendel, L. B.: The Resumption of Growth after Long Continued Failure to Grow, Jour. Biol. Chem., 1915, **23**, 439.

2. Stewart, C. A.: Proc. Am. Assn. Anat., December, 1915, p. 75; Anat. Rec., 1916, **10**, No. 3.

3. Stewart, C. A.: Growth of the Body and of the Various Organs of Young Albino Rats After Inanition for Various Periods, Biol. Bull., 1916, **31**, 16.

THE SIGNIFICANCE OF VARIABILITY IN GROWTH DURING SCHOOL YEARS

The hygiene of school life has begun to receive consideration from both educators and physicians. Increasing sums are being spent on the problems of the health of schoolchildren; and greater and better facilities for health conservation work are being demanded every year. Sound teeth, perfect vision, correction of physical deformities, adequate nutrition, improved resistance to infection and greater freedom from disease are desiderata which every fair-minded citizen must join in obtaining as a matter of ultimate public advantage.

Education is a preparation for life, and should not neglect any desirable feature of development, whether physical, moral or intellectual. A present difficulty

in this work is the lack of suitable criteria of the efficiency of the methods employed. Certain improvements can be directly ascertained by medical inspection; others are as yet vouched for only by a sort of personal estimate. Growth is the most conspicuous manifestation of the period of school life. It seems likely, therefore, that whatever will contribute to the more accurate analysis or measurement of growth in its varied manifestations will contribute to the formation of the much desired impersonal judgments as to the status of our schoolchildren at any age or stage of development.

Hygienically suitable or unsuitable environments doubtless leave some mark, temporary or permanent as the case may be, on the record of growth. But growth cannot be measured or evaluated with absolute mathematical precision because of the factor of variability. T. Brailsford Robertson[1] of the University of California has clearly indicated the significance of this. In any fortuitously selected group of animals or human beings, he says, the individuals comprising the group will be found to vary in greater or lesser degree from the type or average which the group collectively represents. When a large proportion of the individuals comprising the group differ from the average to a considerable degree, we say that the group or type is highly variable; when the converse holds good, that is, when few of the individuals comprising the group depart widely from the average, we consider the group or type to be but slightly variable. It is evident that if a measure of variability can be conveniently obtained, it represents a factor or group of factors which may conceivably be affected by environmental or physiologic conditions in a distinctive manner. In comparative studies of growth under varying environmental or dietetic conditions, a knowledge of the variability of the organisms studied is essential in order that we may determine the deviations from the average which may be regarded as normal, and those which on the contrary must be regarded as abnormal and attributable to the experimental conditions under which we have placed the individuals which display them.

If, then, we desire to obtain a reliable criterion of abnormality, we shall do well to select for our purpose the measurement which is normally found to be least variable, since relatively small deviations from the normal are in that case fraught with significance which does not attach to similar deviations from the normal displayed by a more variable characteristic. Robertson has lately made extensive studies of the physical dimensions and welfare of large numbers of schoolchildren of the various schools in the city and environs of Oakland, Calif. Here he has found that the rate of growth in weight of schoolchildren of both sexes increases from the seventh to the fifteenth year, and variability in weight undergoes a parallel increase during this period. There is a decided tendency for maxima of variability to coincide with maxima of yearly increment in weight. The stature of schoolchildren during this period increases at an almost uniform rate, and the variability of stature is correspondingly uniform. The variability of stature is much less than the variability of weight, from which we may infer that as a criterion of abnormality the measure of stature is more reliable than that of weight, while as a sensitive indicator of the effects of environmental, physiologic or dietetic fluctuations, provided statistical methods of investigation are employed, the measure of weight is to be preferred to that of stature.

Robertson has found that increasing unfavorability of environment results in a parallel increase of deficiency in weight and stature. It is a strikingly significant fact, also, that as the favorability of the environment decreases, the proportion of medical care extended to the children, as indicated by the percentage of removed adenoids, also decreases; while the degree of medical neglect, as indicated by the percentage of unremoved infected adenoids, undergoes a parallel increase. Such studies exemplify the kind of careful statistical analysis to which some of the problems of the hygiene of school years must presently be subjected.

1. Robertson, T. B.: Studies on the Growth of Man, IV, The Variability of the Weight and Stature of School Children and Its Relationship to Their Physical Welfare, Am. Jour. Physiol., 1916, 41, 547.

THE "OPEN DOOR" IN CHINA

Some days ago the newspapers of the country received a press bulletin sent out by the Bureau of Foreign and Domestic Commerce of the Department of Commerce, Washington. The bulletin was marked "Confidential — Released for Use of Morning Papers of Monday, March 19, 1917." It dealt with "American Remedies for Chinese Ailments" and was a brief introduction to "Special Consular Report, No. 76," issued by the bureau and entitled "Proprietary Medicine and Ointment Trade in China." In due time the special report was received and from it we quote somewhat freely:

"Hygiene is practically unknown among the Chinese. . . ."

"No country offers a richer field for the proprietary medicine trade than China."

". . . the selling of patent medicines has proved to be successful *largely, if not wholly, to the extent that well-planned advertising creates a demand*, and thus ultimately gives the manufacturer *maximum returns* with a *minimum expenditure*. . . ."

"It is positively asserted by one American who reaped a rich harvest of orders after a good publicity campaign that with sufficient advertising *anything at all within reason* can in time be profitably introduced to the Chinese trade."

Bear in mind that the quotations just given, certain parts of which we have emphasized by italics, are not taken from a circular sent out by the "patent medicine" interests, nor from an advertising agency trying to drum up trade for the Orient, but are from a report issued by the Department of Commerce of the United States. Says the report:

"Through judicious and persistent advertising the natives are gradually being educated to the necessity of paying some

intelligent attention to their various ailments and are responding remarkably well."

Less euphemistically this might be expressed thus: If you advertise persistently enough and skilfully enough you can get the Chinese to swill your tonics and swallow your pills with as much readiness as do the Occidentals. Again:

"There is room for all kinds of proprietary-medicine preparations in China, provided, of course, that such medicines are reasonably efficacious for the ills for which they are recommended."

Not too efficacious, of course, but "reasonably efficacious"! "Reasonably" is good! But American "patent medicine" manufacturers are warned that if they expect to get a foothold in China their nostrums must be, at least, "reasonably efficacious" for "the Chinese are perhaps more critical than any other nation, and are very sensitive about spending money without adequate returns." As the proportion of Chinese who recover from passing indispositions with treatment, without treatment or in spite of treatment, is probably as high as that obtaining among other nationalities, they can, doubtless, be fooled into believing that they have received "adequate return" from their self-drugging as easily as the rest of mankind is fooled.

We learn further from this interesting report that while the Chinese prefer medicine in tablet or pill form, nevertheless "several liquid medicines have met with success, notably palatable tonics with medicinal properties." Is China dry, too? "Palatable tonics with medicinal properties" — how familiar!

"It is highly important to avoid too much exaggeration, as the average Chinese is phlegmatic and sensible," says the report. Here the American "patent medicine" maker may possibly "fall down." It is as difficult to conceive "patent medicine" advertising that avoids exaggeration as it is to visualize the hole in a doughnut that has been eaten. But it is not "exaggeration" but "too much exaggeration" that is to be avoided. The ubiquitous "patent medicine" almanac and the indispensable testimonial are both recommended by the Department of Commerce to those nostrum exploiters that wish to gain a foothold for their products in China. "Testimonial advertising has met with success in China," says the bulletin, "and many spontaneous letters of gratitude are received daily by leading 'patent medicine' firms" in that country. The almanac suggested for Chinese trade in this Special Consular Report should be in "the form of a scroll." Such almanacs are very popular, "since the Chinese are eager to have a pictorial calendar in their homes all year round for the purpose of discovering 'lucky' or 'unlucky' days for weddings, funerals, and other affairs." As such almanacs are "usually displayed in a conspicuous place in the home all through the year" there is "no doubt that this form of advertising is one of the best that can be devised." The "favorite design" for such almanacs, we learn, "used to be an illustration of an old classic tale." But the Orientals are not as peculiar as Bret Harte would have us believe, for "now the Chinese prefer a girl picture"!

Physicians who visited the Panama-Pacific International Exposition in San Francisco may remember the exhibit of the Propaganda department of THE JOURNAL on the nostrum evil and quackery. When the exposition closed this exhibit was turned over to the Health Division of the Lecture Department of the Young Men's Christian Association in China, which has used it to splendid effect in China. THE JOURNAL received a letter from one of the secretaries of the Lecture Department in Shanghai thanking the American Medical Association for its gift, in which the writer said:

"It [the exhibit] will find a marvelous opportunity in the needy country of China to initiate the campaign such as you have so effectively begun in America against the frauds and quacks that are preying on our people. In China, where superstition on medical subjects is rank, where ignorance is prevalent among a large class of the population, where there is but a minute beginning toward modern Western medical practice, we find a soil prepared for the quack medicine vendors, such as is probably not surpassed in any other part of the world, and already patent medicine advertisements have become among the most prominent in all parts of the country."

This was written over a year ago, but it is almost prophetic in forecasting the extension of the nostrum evil so enthusiastically fathered by Special Consular Report No. 76, issued by the Department of Commerce of the United States government.

THE BEHAVIOR OF THREE ORGANIC ACIDS IN THE BODY

The three organic acids, oxalic, tartaric and citric, or certain of their salts, in varying, though small quantities, all form a part of commonly used foods. Oxalic acid is properly looked on as a poison. No suspicion of harmfulness has attached to the salts of tartaric acid beyond what might be charged to the use of cream of tartar or Rochelle salt. Although magnesium citrate acts as a mild laxative, sodium citrate is dispensed as the more palatable equivalent of sodium bicarbonate, and citric acid prepared from the juice of limes or lemons is appreciated as a harmless refrigerant and substitute for lemon juice. Perhaps the comparative reputations which they bear for toxicity or innocuousness, respectively, are after all not inherent in these individual somewhat related organic acids, but are rather the expression of varying dosage. Very dilute hydrochloric acid is readily tolerated in large volumes as a component of the gastric contents, whereas a few drops of the concentrated acid are intensely irritating and harmful. A small amount of common salt as a constituent of most meals is repeatedly being ingested

without concern; but a concentrated solution of sodium chlorid brine may promptly exhibit aperient effects.

Oxalic, tartaric and citric acids have certain chemical properties in common. Each precipitates calcium; and as this seems to be an important aspect of the toxicity of oxalates, it might be expected that a common chemical mechanism would produce comparable results. Yet this is not always a safe guide. Methyl and ethyl alcohols, which are similar in many of their properties, behave differently in the organism, the ethyl alcohol being far more easily oxidized within the body and thus excluded from the possibilities of doing further harm. Hence it has a lesser toxicity in contrast with the same doses of the less readily destroyed methyl alcohol.

The poisonous character of even small doses of oxalates is so well known that it requires little further comment here. Many regard the question whether oxalic acid is oxidized at all in the body as still open. The increment of oxalic acid in the urine following increased intake even in the small amounts that occur in some of the green vegetables brings evidence of its resistance to oxidation. The tartaric acids likewise appear to be less readily destroyed in the body than many other organic compounds. Little attention was directed to any harmful results produced by them until Underhill's discovery of the tubular nephritis following administration of tartrates.[1] The degree of renal injury can be modified by the reaction of the diet; and the dosage of such a tartaric acid compound as Rochelle salt required to elicit detectable signs of kidney lesions is not small. It has been argued that the latter fact excludes all possibility of harm so far as tartrates form a part of ordinary diets and even of ordinary therapeutic doses of them. This is at least debatable in the absence of more extensive observations. In any event, tartrates are no longer to be looked on as absolutely inert from a physiologic point of view. Perhaps the old cream of tartar therapy will at length be abandoned or subjected to more rigorous critique in respect to latent dangers.

Despite these uncertainties about the tartrates, citric acid and sodium citrate have borne a satisfactory reputation for inertness in the sense of freedom from harmful manifestations in the body. Citric acid is reputed to be burned up completely in the organism. Janney[2] has administered 15 gm. of sodium citrate to man without detecting any in the urine; and after doses of 25 gm., only insignificant traces appeared. He states that 30 gm. of citric acid have been administered without apparent harm along with 60 gm. of sodium bicarbonate. Sodium citrate is widely used at present in human therapy as a substitute for the less palatable bicarbonate.

These features of citric acid have now been substantiated in a general way by the detailed experiments of Salant and Wise[3] of the Bureau of Chemistry in Washington. They show, however, that even citrates may manifest toxicity, provided the dose is large. But the action of citrate is acute. As was expected, it is evident that citrates are decomposed or destroyed in the body more readily than either tartrates or oxalates. When citrate was given intravenously, subcutaneously or by mouth, no after-effects were observed. Neither sugar nor albumin was present in the urine, which was examined for several days after toxic doses of citrate were administered. Symptoms developed rapidly, especially after large doses, and ended in recovery or death within a few hours.

The behavior of citrate and tartrate to increasing harmful doses also shows that their action is not the same. A partial tolerance can be developed for tartrates. According to Salant and Wise, the greater toxicity of the tartrate may be accounted for by the rate of oxidation of the two salts, citrate probably being more readily destroyed in the body than tartrate. The action of these salts in this respect is similar to that of ethyl and methyl alcohol. It has been shown that the acute toxic dose of methyl alcohol is larger than that of ethyl alcohol, the oxidation of the former being slower and incomplete. According to Pohl, methyl alcohol is oxidized to formic acid and formaldehyd, which are more poisonous than the original substance. Quoting the Washington investigators, perhaps tartrate undergoes a similar transformation in the body, the products of decomposition being more toxic than the salt from which they are derived.

It may seem uncanny to some persons to associate the acids of foods like the grape and lemon in common daily use with drugs and poisons. There is, however, nothing incongruous in this. We are learning to apply quantitative measures to benefit and harm. The organism can manage limited amounts of foods and certain nonfoods without detriment and usually with advantage. It is possible to overstep physiologic limits of intake of even the most readily assimilable nutrients, such as sugar or protein. The organism then excretes the unused products, and perchance suffers. There are limits of tolerance for simple foods as well as for organic acids. The differences are essentially quantitative, and we must learn the measure of what the human body can either use or endure.

1. Underhill, F. P.: The Influence of Sodium Tartrate upon the Elimination of Certain Urinary Constituents During Phlorhizin Diabetes, Jour. Biol. Chem., 1912, **12**, 115. Underhill, F. P.; Wells, H. G., and Goldschmidt, S.: Tartrate Nephritis, with Especial Reference to Some of the Conditions under Which it May Be Produced, Jour. Exper. Med., 1913, **18**, 322; A Study of Renal Secretion During Tartrate Nephritis, ibid., p. 347.

2. Janney, N. W.: Die Ammoniakausscheidung im menschlichen Harne bei Zufuhr von Harnstoff und Natron, Ztschr. f. physiol. Chem., 1912, **76**, 99.

3. Salant, W., and Wise, L. E.: The Action of Sodium Citrate and Its Decomposition in the Body, Jour. Biol. Chem., 1916, **28**, 27.

The Estimation of a Scholar.—The first thing naturally when one enters a scholar's study or library, is to look at his books. One gets a notion very speedily of his tastes and the range of his pursuits by a glance round his book shelves.—O. W. Holmes, The Poet at the Breakfast Table.

Current Comment

THE SUPPLY OF SALVARSAN

Three weeks ago we called attention[1] to an impending shortage of salvarsan. At that time there was evidence that many physicians were unable to obtain the product. Mr. Herman A. Metz wrote to THE JOURNAL stating that his firm had a supply of salvarsan and neosalvarsan ample for normal requirements for several months. He said, further, "By the time our supply of the foreign product is exhausted I will be ready to deliver salvarsan and neosalvarsan made in this country according to Ehrlich's method and patents." More recently it was announced that arrangements had been made with Dr. Jay Frank Schamberg of the Dermatologic Research Laboratories of Philadelphia to supply hospitals and dispensaries, through Mr. Metz, with arsenobenzol "at the rate of $2.50 and $2.20 per ampule for the 0.6 and 0.4 gm. sizes, respectively," salvarsan and neosalvarsan to be supplied to physicians presumably at the higher cost. No doubt the charge that salvarsan and neosalvarsan have been bought and hoarded for speculative purposes, even by certain physicians, is well founded. The salvarsan manufacturers, of course, are justified in guarding against this; but in doing so they should not carry the matter so far as to prevent any physician from obtaining the legitimate supply he needs. THE JOURNAL will be glad to be kept informed as to whether or not physicians are receiving the product in sufficient quantities to supply actual requirements. Meanwhile, we can but repeat that it is an unfortunate condition that permits one individual or firm to have such absolute control of an important medicament.

THE FALLACY OF INTERNAL VACCINATION AGAINST SMALLPOX

As the brief report by Garrison[2] on internal vaccination shows, there are, strange as it may be, some persons who believe that the taking of vacciniun or vaccine matter into the stomach will protect against smallpox. The result of the experiment reported by Garrison proved the utter failure of this method — of twenty-five persons given vacciniun by mouth, twenty were subsequently proved to be unprotected, as they were vaccinated successfully by the ordinary or scarification method. This was a foregone conclusion because medical science and experience know of no other successful and practical way of inducing the changes in the body which result in protection against infection, than by introducing the vaccine material directly into the tissues or the blood. This is true of all forms of protective inoculation—inoculation against typhoid, against cholera, against plague, etc., as well as against smallpox. In no laboratory experience and in no army or navy anywhere in the world is the so-called internal vaccination or introduction of the material into the stomach practiced. The farmer does not protect his hogs against hog cholera by letting them eat a somewhat modified hog cholera virus. The simple reason for this universal practice of introducing the vaccine material directly into the tissues is that when introduced into the stomach in health, the material is broken up and digested and deprived of its specific properties before it is absorbed. Ignorance and prejudice die hard.

1. Another Shortage of Salvarsan, THE JOURNAL, March 10, 1917, p. 785.

2. Garrison, C. W.: Report of Vaccination Experiment at State Hospital for Nervous Diseases, Little Rock, Ark., THE JOURNAL, this issue, p. 979.

BASE HOSPITALS FOR THE ARMY

In the news columns is an account of the progress which has been made in the organization of base hospitals under the direction of the American Red Cross. Several points are worthy of mention in connection with this movement. The first is that for over a year the details of this movement have been going on quietly and without excitement or hysteria. When it is considered that thirty-four hospitals have been organized and twenty-three of them completely equipped, that this involves the selecting, enrolling and training of over 800 physicians and surgeons and the selecting of a total personnel of nearly 7,000 persons, it will be realized that the medical profession has for some time been doing its share in the national preparedness movement. The function of these base hospitals should be clearly understood. They are not intended for operation in the cities in which they are organized, but are mobile units which can be sent on short notice to any desired location. They are not intended for operation in the field in close connection with troops or near the firing line, but are designed to serve as base hospitals receiving the wounded from the field hospitals, as do the base hospitals in Europe. Probably fifty such units capable of caring for an aggregate of 25,000 sick and wounded soldiers can be completed with little difficulty. With such an equipment, in addition to the regular medical and surgical service in the army and navy and the various ambulance corps which are being organized, it is safe to say that the United States is today better prepared to care for the sick and wounded in any possible war than it ever has been before in its history.

Coal Mine Fatalities in 1916.—According to a compilation by Albert H. Fay of the Bureau of Mines, during 1916 there were about 2 per cent. less fatalities in and about the coal mines of the United States than in 1915. This reduction occurred although the amount of coal mined increased in that period about 12 per cent. The number of fatalities reported during the year was 2,225 as compared with 2,269 for 1915. The actual number of men employed during the year is not known, but on the basis of the figures for 1915 the fatality rate per thousand men employed was 3.03 in 1916 as compared with 3.09 in 1915. The number of mine disasters in 1916 was eleven, with an average fatality for each of five, the same as in the years 1915 and 1914. The number of killed was 154 in 1916 as compared with 262 in 1915, 316 in 1914 and 464 in 1913. The decrease in fatalities, though not large, is the result of agencies and measures employed to reduce accidents, among which may be mentioned the general use of safety lamps in doubtful mines, the introduction of permissible explosives, humidifying dusty mines, first aid and rescue training, which results in saving lives, the enactment of accident compensation laws, and, as the bulletin says, the spirit of cooperation on the part of all concerned.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Personal.—Dr. Fosdick Jones, Denver, has been called for duty with the American Ambulance, Neuilly, France.——Dr. George B. Packard, Denver, has been elected president; Dr. Melville Black, vice president, and Dr. Thomas E. Carmody, secretary-treasurer of the Denver Children's Hospital, which was recently opened with accommodations for 100 patients.

FLORIDA

Hospital Notes.—The construction of the Flagler Hospital, Jacksonville, will be commenced at an early date. The single building plan has been adopted as more adaptable to the needs of the city than the unit system. The initial expense incurred will be at least $125,000.——Tampa physicians are planning a seventy-room hospital to be known as the William Pitt Lawrence Hospital.

State Board of Health Schools Centralized.—Hon. F. J. Fernside, Palatka, president of the state board of health, has recommended to the governor the creation of a state bureau of charities and correction to have charge of indigent crippled children, reform schools for the deaf, dumb and blind, state hospitals for the insane and possibly convicts. He also recommends the amendment of the present school inspection law giving the state board of health full supervision over this work and permitting the appointment of inspectors without the restrictions which the present law contains.

ILLINOIS

Public Health and Welfare.—The Illinois Public Health and Welfare Association, made up of the governmental and extra-governmental health agencies of the state, will hold its first annual meeting at Springfield, April 12 and 13. The program embraces public health and medicosocial work, and the meeting will serve as a combined conference of health workers and school for health officers. Dr. G. T. Palmer, Springfield, is president, and Mr. Paul Hansen, Springfield, is secretary.

Chicago

Fraternity House Quarantined.—The Delta Tau Delta Fraternity House at the University of Chicago is the third fraternity house of this institution to be quarantined on account of scarlet fever.

Diphtheria.—The health department of Chicago reports that diphtheria is steadily increasing. During the first twenty-one days of March there were 720 cases with fifty-two deaths, and during the week ending March 23, there were 259 cases, or nearly double the number reported during the similar week of 1916.

Infantile Paralysis.—Two mass meetings under the direction of the Association for the Prevention of Infantile Paralysis were held at the Cort Theater, March 23 and March 30. These meetings were in connection with the city-wide movement to enlist the aid of Chicago women against infantile paralysis.

Banquet and Presentation.—In the celebration of the tenth anniversary of his directorship of mechanical physiology at the University of Chicago, fifty pupils of Prof. Anton Julius Carlson who took higher degrees under him presented him with a Sigma Xi key jewelled with diamonds at a banquet given in his honor at the Windermere Hotel, March 24.

MARYLAND

General Hospital Fund.—The first two days of the campaign for the Maryland General Hospital fund netted $43,427.53 toward the $150,000 which is required for the hospital.

Meetings.—The Thirteenth National Conference on Child Labor under the auspices of the National Child Labor Committee was held at McCoy Hall, Baltimore, March 23 to 25.——A special meeting of the Baltimore City Medical Society was held at the Faculty Building, March 23, when an address on "Universal Compulsory Military Training and Service" was made by Hon. Sidney Ballou, former judge of the supreme court of Hawaii. Motion pictures on "The Army and Navy" were shown.

Doctors for Milk Bill.—The milk ordinance, requiring pasteurization and bottling, which is pending in the city council, was endorsed by Dr. J. H. Mason Knox, president of the Babies' Milk Fund Association; Dr. William T. Howard, Jr., assistant commissioner of health, and Marion B. Hopkins, city chemist, at a recent hearing held before a committee of the city council. At present forty-three pasteurized dairies sell 65 per cent. of the milk used in the city; the remainder being sold loose by small dealers.

MASSACHUSETTS

Cutter Lecture.—The Cutter Lecture on preventive medicine and hygiene will be delivered at the Harvard Medical School, April 3, at 8:15 p. m., by Dr. Ludvig Hektoen, director of the Memorial Institute for Infectious Diseases, Chicago, and will be on "A Discussion of Poliomyelitis in the Light of Recent Observations."

Research Fellowship and Food Poisonings. — Several research fellowships in the Department of Preventive Medicine and Hygiene at Harvard are available for the scientific investigation of food poisoning. The work may at the same time be credited toward the Doctor of Public Health degree. Candidates should apply to Dr. Milton J. Rosenau, Harvard Medical School, Boston.

Framingham Citizens Cooperate.—The citizens of Framingham are cooperating with the community health station, established at Framingham. An exclusion committee has been appointed to protect Framingham from any unusual increase in new families from outside, who having sick members may think it advantageous to move to the city in view of the intensive health work being done there.

Personal.—Dr. William E. Deeks has been appointed a lecturer on tropical medicine in Harvard University.——Dr. Henry P. Walcott, Boston, has been reappointed a member of the Metropolitan Water and Sewerage Board.——Dr. Thomas B. Smith, Lowell, has been appointed medical examiner of the Fifth Middlesex District, succeeding Dr. Joe V. Meigs, deceased.——Dr. Timothy Leary, Boston, has been reappointed medical examiner and Dr. William H. Watters, Boston, associate medical examiner for Suffolk County.

Harvard Medical Lectures.—The free public lectures given under the auspices of the Faculty of Medicine of Harvard University, at the Medical School, Longwood Avenue, Boston, at 4 o'clock on Sunday afternoons during April will be as follows:

April 1: "Fleas and Other Insect Parasites in Their Relation to Public Health," Dr. C. T. Brues.
April 8: "Accident and Injury; First Aid" (with demonstration of simple methods and materials), Dr. J. Bapst Blake.
April 15: "Urinary Troubles in Elderly Men" (to men only), Dr. Paul Thorndike.
April 22: "Some Facts and Fancies About Heart Disease," Dr. W. H. Robey.

NEW YORK

Antidrug Bill.—The Whitney antinarcotic bill was endorsed by representatives of the New York State and New York County Medical societies and of the Medical Economic League at a hearing, March 22. The bill provides for a free supply of drugs for addicts and for the registration of addicts. Some objection was made to the triplicate order blank system of checking narcotic drug distribution. This part of the bill is under consideration with a view to evolving some plan which will not work undue hardship on practicing druggists.

Prevention of Disease.—The course of public lectures on "Public Health and Preventive Medicine" which is being given under the auspices of the Albany Medical College, at the State Educational Building, Albany, Wednesday afternoons at 5 o'clock will be as follows during April:

April 4: School Inspection, Dr. William A. Howe, State Medical Inspector of Schools.
April 11: Anaphylaxis Against Bacterial Proteins, Dr. Hans Zinsser, Professor of Bacteriology, College of Physicians and Surgeons, Columbia University.
April 18: The Disinfection of Water, Mr. G. E. Willcomb, Chemist, Bureau of Water, Albany.
April 25: Subject to be announced, Hon. Alden Chester, Justice of the Supreme Court.

Physician Secures Reinstatement.—The eight year fight waged by Dr. W. B. Reid, Rome, to secure reinstatement in the Oneida County Medical Society is said to have been ended, March 14, by the handing down of a decision by the Appellate Division, Third Department, affirming the findings of

Justice William Ross in favor of Dr. Reid. The Oneida County Medical Society, in 1909, charged Dr. Reid with unethical conduct in advertising and exploiting in the public press a surgical operation which he had performed. The board of censors, after an investigation, presented an adverse report and Dr. Reid was expelled. He appealed to the state medical society, which reversed the ruling of the county society. Dr. Reid was reinstated, May 25, 1912, but charges were again preferred against him five days later. Dr. Reid then secured a temporary injunction; this was dismissed and the dismissal was affirmed by the Appellate Division on the ground of premature action. July 14, 1914, he was again expelled, without, as he claimed, any new charges having been brought. He again appealed to the state society, which at its annual meeting in April, 1915, referred the matter to the board of censors, which dismissed the appeal. Dr. Reid then carried the fight against this expulsion to the courts and Justice Ross decided in his favor, whereupon the Oneida County Medical Society carried the case to the Appellate Division.

New York City

Personal.—Dr. Benjamin F. Knause has been appointed full time borough chief for Brooklyn by the department of health.——Dr. S. Dana Hubbard has been assigned to the full time position of borough chief of the Bronx.

Harvey Society Lecture.—The last of the Harvey Society Lectures will be given at the New York Academy of Medicine, April 7, when Prof. William H. Howell of Johns Hopkins University will speak on "The Coagulation of the Blood."

Annual Meeting of Beth Israel Hospital Association.—The new Beth Israel Hospital, to be erected at Livingston Place and East Seventeenth Street, will include departments for the relief and prevention of heart disease, and for the after-care of infantile paralysis victims. There will be an enlarged maternity ward and improved pathologic and bacteriologic laboratories. A fund has been established by Mrs. Isaac I. Rice to send the needy sick to the country until they have recovered. Treatment was given 93,237 patients during the past year, nearly all free of charge. Nearly 2,000 patients were refused because of lack of room.

NORTH CAROLINA

State Society Meeting.—The Medical Society of the State of North Carolina will hold its annual meeting in Asheville, April 17 to 19, with headquarters at the Battery Park Hotel. Dr. Charles J. O. Laughinghouse, Greenville, is president of the society.

OHIO

Base Hospital at Toledo.—The Lucas County Academy of Medicine has passed favorably on the establishment of a base hospital in Toledo. The trustees of the Commerce Club of Toledo have pledged $30,000 for the equipment of this hospital.

Specific Disease Clinic.—Seven clinics for the diagnosis of specific disease are to be operated by Cleveland in connection with the city dispensaries. The patients will be given advice regarding the treatment of their particular ailment and will be referred to physicians. Those who are unable to pay will be given treatment at one of the free dispensaries.

State Medical Association.—The Ohio State Medical Association will hold its annual meeting in Springfield, May 14 to 16, under the presidency of Dr. Harmon B. Gibbon, Tiffin. Dr. Montgomery V. Patton is chairman of the committee of arrangements. During the meeting, a mass meeting will be held in the interests of public health, at which Dr. William Colby Rucker, assistant surgeon-general, U. S. P. H. S., will deliver the principal address.

Personal.—Dr. Walter A. Haldy, Cleveland, has returned after three months' work with the German Red Cross.——Dr. John E. Monger, Greenville, has succeeded Dr. Norton W. Bland as registrar of the State Bureau of Vital Statistics, Columbus.——The summer home at Snyderville of Dr. Emory F. Davis, Springfield, was destroyed by fire, March 4.——Dr. Harry L. Rockwood, superintendent of the Warrensville Sanatorium, has been appointed chief of the Bureau of Tuberculosis, Division of Health of Cleveland and medical director of the Warrensville Sanatorium.——Dr. Carl Mulky, Knoxville, Iowa, has been appointed assistant superintendent of the Warrensville Sanatorium.

Cincinnati

Cincinnati Physicians in England.—Drs. James S. Brummett, Robert Carothers and Benjamin H. Lamb are all on duty at British war hospitals in the north of England.

Laboratory Dedicated.—The clinical laboratory, donated to the Cincinnati General Hospital by Charles D. Boldt, was dedicated, March 7, Dr. Christian B. Holmes accepting it on behalf of the city. The medical staff of the hospital gave a dinner to Mr. Boldt.

Hospital Staff Reorganized.—The attending staff of the Good Samaritan Hospital has been entirely reorganized. Several of the members have been dropped and eight new members have been appointed. The officers of the staff are Dr. Charles L. Bonifield, president; Dr. Robert Carothers, vice president, and Dr. Clement C. Fihe, secretary.

PENNSYLVANIA

Scranton Schools Quarantined.—On account of the indifference said to have been displayed by local health authorities, Health Commissioner Samuel G. Dixon has closed the schools of Scranton.

Physician Wins Suit.—In the suit brought by Dr. Arthur D. Cowdrick, Clearfield, against the New York Central System, in which he claimed damages on account of being delayed at a railroad crossing by a freight train for from forty-five to fifty minutes, as the result of which rheumatism developed, and which was decided in his favor in the county court, the decision has been upheld by the supreme court.

Philadelphia

Personal.—Dr. Charles S. Hirsch has been elected urologist to the Jewish Hospital.——Dr. George A. Brown has been elected to succeed Dr. John T. Powers, resigned, as resident physician of Girard College.

Newbold Lecture.—Dr. Arthur T. McCormack, Bowling Green, secretary of the Kentucky State Board of Health and state sanitary inspector, delivered the first Mary Scott Newbold lecture in the College of Physicians, March 29, on "The Threat of National Inefficiency from Ill Health."

Changes in State Militia.—Recent changes in the state militia include Dr. Harvey M. Righter, commissioned lieutenant and passed assistant surgeon in the naval militia, and Dr. William M. Sylvis, first lieutenant, M. C., N. G. Pa. The resignations of Lieuts. William W. Van Dolsen and Charles B. Kendall, M. C., have been accepted. Major Frederick O. Waage, M. C., has been relieved from duty with the First Infantry and assigned to duty at headquarters division.

Health Course for Women.—The public lecture course for women on "Health Problems of Every Day Life," which commenced, January 31, will include the following lectures during April:

April 4: "The Care of the Teeth," Alice Norton, D.D.S., Chief of Dental Clinic.

April 11: "Health of School Children," Ellen Culver Potter, M.D., Clinical Professor of Gynecology; Medical Inspector of Public Schools.

April 18: "Conditions and Care in Old Age," Arthur A. Stevens, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine.

Woman's Court Opened.—The first women's court in the United States was opened, March 24, at Twelfth and Wood streets. The entire first floor of the building is devoted to the court room, where the women will be tried and where their cases will be studied by social workers and physicians for mental and physical defects. A medical clinic and a mental clinic have been provided under the direction of Dr. Frances C. Van Gasken of the Women's Medical College, and opportunity will be given to women physicians to work in these clinics.

CANADA

Report of Provincial Health Board.—The Manitoba Board of Health in its annual report suggests the division of Manitoba into health districts, each in charge of a trained whole time medical officer; that a voluntary association of the health officers of the province be organized; that the remuneration of the health officer be based on the population of the district under his control, and that health returns and vital statistics receive better attention. Of 5,000 children examined in the public schools, 1,260 were found to require medical or dental attention.

Personal.—Dr. Charles White, Woodstock, Ont., who has been medical director of the Tuberculosis League Hospital, Pittsburgh, has been appointed director of the voluntary relief work of the health service of the French War Department by the Boston Committee for French Work.——Dr. Adam H. Wright, Toronto, has been reappointed chairman of the Ontario Board of Health for 1917. The other members of the board are: Drs. A. A. Weageant, Ottawa; Thomas E. Kaiser, Oshawa; James R. Roberts, Hamilton; William H. Howie,

Sudbury, and Henry R. Casgrain, Windsor. Lieutenant-Colonel Casgrain is overseas.——Dr. Armstrong, Kingston, Ont., has been appointed house surgeon of the Regina (Sask.) General Hospital in succession to Dr. de Martini.——Gen. Guy Carleton Jones, C. M. G., has returned to Ottawa. His appointment as inspector-general of the Canadian Medical Services in Canada, England and France, has been gazetted. ——Col. Herbert A. Bruce, Toronto, has landed in England. ——Capt. Adam F. Menzies, C. A. M. C., gold medallist of Manitoba Medical College, was severely wounded last December. He was a house surgeon in the Winnipeg General Hospital when he went overseas a year ago. Recently he was awarded the Military Cross for conspicuous gallantry and devotion to duty.——Dr. John L. Chabot, M. P., Ottawa, has been promoted to lieutenant-colonel.——Capt. E. C. Wilford, C. A. M. C., returned to Canada a short time ago from Tseliutsing, China, where he has been for the past eight years as a medical missionary.——Lieut.-Col. William M. Hart, C. A. M. C., Regina, Sask., was a prisoner in Germany for several months. He is now attached to the Granville Special Canadian Hospital, Ramsgate, England. Major Robert Wilson, C. A. M. C., is also attached to that hospital.——Captain Scrimgeour, V. C., C. A. M. C., Montreal, is now at the headquarters of the Canadian Medical Services, London, England. He is now examining officer for the medical board.——Lieut. Francis J. Ellis, C. A. M. C., is medical officer at the 77th Battery Depot at Regina, Sask.——Capt. Fred R. Nicolle, Chatham, Ont., has returned home on sick leave. He contracted trench fever at the front and was in a hospital in England for some months.——Capt. Aubrey H. Davies, R. A. M. C., Vancouver, B. C., formerly in practice in Delhi, Ont., is surgeon on the hospital ship *Guilford Castle* plying between East African ports and Capetown.——Dr. Fred Adams, epidemiologist of the Toronto Board of Health, has left for overseas service.——Capt. James H. Hamilton, C. A. M. C., Revelstoke, B. C., medical officer of a Kootenay Battalion, after passing through the battles of the Somme, was injured while in billet and has been invalided to Canada.——Major David B. Bentley, C. A. M. C., Sarnir, Ont., is reported ill in England.——Dr. Walter L. Barlow, Frederick A. L. Lockhart, Frank S. Patch, A. R. Pennoyer, and Edmond M. von Eberts, Montreal, are members of a committee of management of the Montreal General Hospital, which will establish a fund for the training of young medical men to be known as the "R. P. Campbell Memorial Fund."——Dr. James D. Curtis, St. Thomas, Ont., has been appointed to a position on the surgical staff of the Workmen's Compensation Commission of Ontario. Dr. Curtis was chief surgeon for the Michigan Central Railway in Canada, and has recently returned from England, where he served a year with the Royal Army Medical Corps.

GENERAL

Pathologists and Bacteriologists to Meet.—The annual meeting of the American Association of Pathologists and Bacteriologists will be held in the New York Academy of Medicine, New York, April 6 and 7.

Dismissed the Service.—The *Army and Navy Journal* of March 17 states that after trial, P. A. Surg. Charles P. Lynch, U. S. Navy, having been found guilty of absence from station and duty, after his leave had expired, was dismissed the service.

Immunologists to Meet.—The fourth annual meeting of the American Association of Immunologists will be held, April 6 and 7, under the presidency of Dr. Richard Weil. The sessions will all be held at the New York Academy of Medicine, with the exception of that on April 6, at 11 o'clock, which will be held at the Rockefeller Institute, Sixty-Sixth Street and Avenue A.

Tuberculosis Work in France.—Dr. Hermann M. Biggs, commissioner of health of New York State, who has been investigating the tuberculosis problem along the French western front, has prepared a report which was presented to the Rockefeller Foundation, March 23. It is stated that Dr. Biggs recommends to the foundation the immediate institution of relief measures in France. It is also stated that relief measures to be effective should be started before the war ends.

The Work of the Rockefeller Board.—The Rockefeller Foundation announces that its appropriations for the year ending Dec. 21, 1916, amounted to $8,249,088. Of this amount, $2,590,000 has been for war relief; $611,557 for the work of the International Health Board, and $1,068,147 for the China Medical Board. The foundation has assisted the medical schools established under American auspices in that country and is formulating plans for the building of medical colleges of the first rank in Shanghai and Peking.

Public Health Propaganda.—Surg. J. O. Cobb, Chicago, U. S. P. H. S., has been detailed to deliver lectures on "Activities of the United States Public Health Service" before the various medical colleges in the city of Chicago.——P. A. Surg. Edward R. Marshall has been detailed to deliver similar lectures in the various medical colleges in the city of New York.——P. A. Surg. James R. Hurley has been directed to give a course in first aid to the Public Health Service Unit of the United Service Section of the American National Red Cross.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of California, for the purchase of an opthalmologic library of 486 volumes for the University of California Medical School, a donation of $1,500 from Mrs. Alexander F. Morrison.

Hanover (Ind.) College, a donation of $20,000, by Dr. Harvey W. Wiley, Washington, as a memorial to his parents, Mr. and Mrs. Preston Wiley.

Dr. Carl W. Brown, Bremen, Ohio, after the payment of about $2,000 in bequests and the erection of a monument to cost not less than $2,000, the residue of the estate, valued at $11,500, by the will of James E. Lane.

Military-Medical Lectures.—The following officers have been detailed to deliver courses of lectures at the colleges named in addition to their details on previous orders:

Maj. Harry L. Gilchrist, M. C., Western Reserve University, Cleveland.

Maj. Guy V. Rukke, M. C., University of Wisconsin, Madison.

Capt. Arthur N. Tasker, M. C., Columbia University, College of Physicians and Surgeons, and Cornell University Medical College, New York.

Capt. John R. McKnight, M. C., Indiana University, School of Medicine, Indianapolis.

Lieut. Henry F. Lincoln, M. R. C., Bowdoin Medical School, Portland, Maine.

Contagious Diseases at Naval Training Station.—Coincident with the large increase in numbers of recruits received from various recruiting stations, there have been a number of cases of contagious diseases at the Great Lakes Naval Training School. Since January 19, there have been twenty-four cases of meningitis with a mortality of 46 per cent., 124 cases of measles, a considerable number complicated by pneumonia, with nine deaths, and nineteen cases of scarlet fever with no deaths. Prompt measures have been taken to control these infections, the most effective being the erection of a large number of tents whereby overcrowding has been obviated. The epidemics are now apparently under control, as there has been a falling off of the number of new cases for some days past.

Charity Conference.—The forty-fourth annual National Conference of Charities and Correction will be held in Pittsburgh, June 6 to 13, in nine sections, each of which will consider a special field. The division of children will be under the direction of Wilfred S. Reynolds, Chicago, and George B. Mangold, St. Louis; the division on community problems will be in charge of Robert A. Woods, Boston, and William J. Norton, Cincinnati; the division of correction will be presided over by Thomas Mott Osborn, Sing Sing, N. Y., assisted by George S. Addams, Cleveland; the division of the family in the community will be under the charge of W. Frank Persons, New York, and Mary C. Goodwillie, Baltimore; the health division will be presided over by Dr. C. E. A. Winslow, Yale University, assisted by Dr. Henry M. Bracken, Minneapolis; the public charity group will be under the chairmanship of A. L. Bowen, Springfield, and Gertrude Vaile, Denver, and the division of rural social problems and social insurance will be under the guidance of John N. Gillett, Grand Forks, N. D., Warren N. Wilson, New York; Max Senior, Cincinnati, and John B. Andrews, New York.

Red Cross Hospitals Organized.—As a part of the general program for preparedness, the American Red Cross has been organizing a series of base hospitals in the larger cities, using one of the leading hospitals in each case as a center. This movement, which was begun over a year ago, has been making steady progress. Twenty-nine base hospitals have so far been organized, twenty-two of them being completely equipped. Of these, seven are in New York, the parent hospital and director in each case being as follows, the star indicating those for which the money for equipment—$25,000—has been subscribed:

No. 1. Bellevue Hospital,* Dr. George David Stewart, 61 West Fiftieth Street.

No. 2. Presbyterian Hospital,* Dr. George E. Brewer, 16 East Sixty-Fourth Street.

No. 3. Mount Sinai Hospital,* Dr. N. E. Brill, Mount Sinai Hospital.
No. 8. New York Post Graduate Hospital,* Dr. Samual Lloyd, 12 West Fiftieth Street.
No. 9. New York Hospital,* Dr. C. L. Gibson, 72 East Fifty-Fourth Street.
No. 15. Roosevelt Hospital,* Dr. Charles H. Peck, 30 West Fiftieth Street.
No. 16. German Hospital,* Dr. Frederick Kammerer, 51 East Sixty-Sixth Street.

Four hospitals have been organized in Chicago. They are:

No. 11. St. Joseph, St. Mary and Augustana hospitals,* Dr. Albert J. Ochsner, 2106 Sedgwick Street.
No. 12. Northwestern University Medical School,* Dr. F. A. Besley, 106 South Michigan Avenue.
No. 13. Presbyterian and County hospitals,* Dr. A. D. Bevan, 122 South Michigan Avenue.
No. 14. St. Luke and Michael Reese hospitals,* Dr. L. L. McArthur, 122 South Michigan Avenue.

In Boston, three base hospitals have been organized, as follows:

No. 5. Harvard University,* Dr. Harvey Cushing, Peter Bent Brigham Hospital.
N. 6. Massachusetts General Hospital,* Dr. F. A. Washburn, Massachusetts General Hospital.
No. 7. Boston City Hospital,* Dr. J. J. Dowling, Boston City Hospital.

In Philadelphia, two hospital units have been completed to date. They are:

No. 10. Pennsylvania Hospital,* Dr. R. H. Harte, 1503 Spruce Street, Philadelphia.
No. 20. University Pennsylvania Hospital, Dr. Edward Martin, 1506 Locust Street.

In Cleveland, Detroit, Baltimore, Rochester, N. Y., St. Louis, Milwaukee, Wis., Buffalo, New Orleans, Cincinnati, Minneapolis, Pittsburgh, Kansas City, Mo., and Denver, one base hospital has been organized in each city, the hospitals and directors being:

No. 4. Lakeside Hospital,* Cleveland, Dr. George W. Crile, 1021 Prospect Avenue.
No. 17. Harper Hospital,* Detroit, Dr. Angus McLean, David Whitney Building.
No. 18. Johns Hopkins Hospital, Baltimore, Dr. Winford Smith, Johns Hopkins Hospital.
No. 19. Rochester, N. Y., Dr. John M. Swain, 457 Park Avenue.
No. 21. Washington University Medical School,* St. Louis, Dr. Fred T. Murphy, 5738 Coates Avenue.
No. 22. Milwaukee County Hospital,* Milwaukee, Wis., Dr. C. A. Evans, 809 Wells Building.
No. 23. Buffalo General Hospital,* Buffalo, Dr. Marshall Clinton, 556 Franklin Street.
No. 24. Touro Infirmary,* New Orleans, Dr. Rudolph Matas, 2255 St. Charles Avenue.
No. 25. Cincinnati General Hospital, Cincinnati, Dr. Joseph Ransohoff, 19 West Seventh Street.
No. 26. Minnesota State University, Minneapolis, Dr. Arthur A. Law, 420 Syndicate Building.
No. 27. University of Pittsburgh Medical School, Pittsburgh, Dr. R. T. Miller, Diamond Bank Building.
No. 28. Christian Hospital, Kansas City, Mo., Dr. J. F. Binnie, 1334 Rialto Building.
No. 29. Denver City and County Hospital, Denver, Dr. Henry Sewall, 1360 Vine Street.

The plan of organization followed is that outlined by Col. Jefferson R. Kean, Director General of Military Relief of the American Red Cross. It provides for a base hospital organized in accordance with the regulations of the Medical Department of the U. S. Army. Each base hospital consists of 500 beds and a personnel of 196, consisting of twenty-three physicians, two dentists, two laboratory assistants and one Roentgen-ray operator. On the medical staff are one medical director, two administrative officers, one quartermaster and one adjutant, nine surgeons and seven medical men, there being an assistant surgical director, an assistant medical director and an assistant laboratory director for each group. The personnel also includes one chaplain, fifty nurses, twenty-five nurses' aids, eighty male employees and fifteen civilian employees. The $25,000 subscribed for equipment provides beds, operating-room furniture and supplies, laboratory equipment, instruments, dressings and everything necessary except blankets, which are furnished by the government. These base hospitals are entirely separate from the ambulance service, which is organized separately. Each base hospital has organized a woman's committee for furnishing linen, dressings, hospital garments, etc. The hospitals so far organized are mainly in cities of the East and North, the movement having apparently not as yet developed fully in the South and West. There are a number of other cities in which base hospitals could be organized, such as San Francisco, Los Angeles, Seattle, Louisville, Ky., Portland, Ore., Atlanta, Ga., and Birmingham, Ala.

Of the navy base hospitals, five have been organized, namely:

No. 1. Brooklyn,* Dr. W. B. Brinsmade, Casino Mansions, Hicks and Montagu Streets.
No. 2. Lane Hospital, San Francisco, Dr. Stanley Stillman, Leland Stanford University.
No. 3. Los Angeles, Dr. Rea Smith, Brockman Building.
No. 4. Philadelphia, Dr. A. B. S. Ashhurst, 811 Spruce Street.
No. 5. Rhode Island Hospital, Providence, Dr. George A. Matteson, 382 Brook Street.

Of these, only the No. 1 hospital at Brooklyn has so far completed its personnel and equipment. The need for navy base hospitals is not so great as for army hospitals, as the navy is not subject to as rapid expansion.

FOREIGN

Sick Prisoners of War Interned in Denmark.—The *Ugeskrift for Læger* of Copenhagen states that by the first of April the Russian, German and Austrian authorities will have sent to Denmark 2,400 prisoners of war suffering from internal diseases, disease of the cardiovascular or nervous system, kidneys or lungs. The initiative for the plan is due to a Russian Red Cross physician who wished to provide better conditions than are possible in a prisoners' camp for those with internal disease. The Russian and Teuton authorities conferred with a Danish committee appointed for the purpose, including Professors Faber and T. Madsen, and the health resorts at Hald in Jylland and at Horserød in Sjælland were selected for the purpose. It is deemed more convenient to keep them separate in this way from the populace, instead of distributing them around among hotels, etc., as is being done in Switzerland.

Deaths in the Profession Abroad.—E. Cervera, a leading surgeon of Madrid and chief of the Instituto Rubio since the death of its founder, aged 62.——**J. Courmont,** professor of hygiene at the University of Lyons, and author of textbooks on microbiology and general pathology, aged 52. Since the beginning of the war he has had charge of the hygiene of the whole Lyons district, and was organizer and consulting hygienist for the entire front. It is said that his overwork was responsible for the fatal cerebral hemorrhage.——**E. Rapin,** a prominent physician of Geneva, Switzerland, aged 84. He took a leading part in public health matters and has published many works on different medical topics. His last communication, 1907, was on familial angioneuroses, based on forty-two cases personally observed. It attracted considerable attention, as he included such a long list from hay-fever to localized edema among the angioneuroses.

WAR NOTES

Personal.—Dr. Kenneth Taylor, formerly of St. Paul, has been appointed director of the Robert Walton Goelet Research Laboratories which are housed in the Doyen Hospital, Paris.

Ambulance Section Leaves for Front.—Section 17 of the American Field Ambulance, composed of students of the Leland Stanford Jr. University, San Francisco, left for Paris, March 16, for the front.

Red Cross Alliance.—An alliance between the Brazilian Red Cross and the American Red Cross has been proposed in a letter received, March 11, by Miss Mabel Boardman from Dr. L. DeOliveria, Botelho, founder of the Brazilian Red Cross. Under the proposed alliance the Brazilian Red Cross, in case of necessity, would offer its personnel and other resources for use by the United States.

Smallpox in Germany.—In a speech made by Socialist Deputy Hoffmann in the Reichstag, March 22, he is said to have stated that there are 30,000 cases of smallpox in Germany and that the disease is spreading rapidly. This report, which has been repeated by newspapers in Austria, has been denied by the German authorities, who admit that there have been 135 cases of smallpox in Berlin alone, with eleven deaths.

Physicians' Expedition Must Return to Their Bases.—The American Physicians' Expedition, under the direction of Dr. Edward F. Nippert, Cincinnati, has returned to its base at Deutsch Eylau to continue its work.——The American Physicians' Unit, operating under the direction of the German-Austrian Aid Society, Chicago, has returned to Graudenz.——The American Unit Station at Naumberg has discontinued its work there and has donated its equipment to the municipality.

Ambulance News.—The American Ambulance Field Service in France has received a gift of $30,000 for the purchase of a full section of twenty-two ambulances with the necessary repairs, care, field kitchens, etc., as a memorial to the late

Dr. Charles Goddard Weld, Boston. The donors are the mother, widow and daughter of Dr. Weld.——Funds for the purchase of another Boston section of ambulances are being raised by the local executive committee, and other sections will be sent to France as funds are collected.——It is reported that four more sections of the American Field Ambulance will be offered to the French army in April.

Naval Medicine.—At a meeting of the Medical Society of London, February 12, Surg.-Gen. Humphry D. Rolleston delivered an address on "Naval Medicine," in which he spoke of the exceptionally good health in the Grand Fleet, which was due, in his opinion, to the comparative isolation of the fleet and especially of the Grand Fleet; to the quarantine precautions in drafting from the shore establishments to the fleet; to the instruction given by the medical officers to the ships' crews on personal hygiene, with especial reference to venereal disease and alcoholic excess; to measures for the mitigation of the effects of the monotony entailed by awaiting events, and to improvements in the ventilation of the ships.

LONDON LETTER

LONDON, March 5, 1917.

The War

THE MEDICAL SERVICE

In Parliament, the minister in charge of the army estimates, Mr. Forster, stated that nothing in the war is more striking than the triumph of science over disease, wholly upsetting the experience of former wars. One of the most remarkable phenomena is the almost total disappearance of typhoid fever, which in former wars had decimated our armies even more effectually than the efforts of the enemy. That was the more surprising when one considered the vast numbers of men, their density on the ground, and the poisoned condition of the soil, especially in France. The latest weekly returns of the number in hospitals suffering from typhoid fever is: France, 4 cases; Saloniki, 9; Egypt, 3, and Mesopotamia, 8, a total of 24. The number of cases of typhoid fever among British troops in France up to November 1 last year was 1,684; of paratyphoid, 2,534, and of indefinite cases, 353, a total of 4,571. In the South African War, nearly 60 000 patients were admitted to hospital, and there were 8 227 deaths. Thus four times as many died from this disease in South Africa as there were cases in France up to November 1. The admission ratio of typhoid fever among the troops in France who had not been protected by inoculation is fifteen times higher than among those who had been inoculated, and the death ratio is seventy times higher. At home during the past year a system of convalescent hospitals, command depots and orthopedic hospitals has been developed and extended. Arrangements have been made with the ministry of pensions by which the problem of the training and the treatment of the discharged soldier will be more effectively dealt with, and arrangements are being made to link up the treatment of the military hospitals with that afforded to discharged soldiers on the outpatient system. The strain on the medical department of providing accommodation for the sick and wounded from the various fronts overseas has been great, and valuable assistance has been received from voluntary hospitals. The system of utilizing the services of the members of the voluntary aid detachments has been highly successful. These women serve abroad in large numbers, and are highly appreciated by the general body of the nursing profession. The system of voluntary aid detachment hospitals has been invaluable in linking up the military medical system with a large number of sympathetic workers among the civil population. The great resources of the British Red Cross have been ungrudgingly placed at the disposal of the medical department on many occasions. A special committee had been recently established by that society, on which are representatives both of the war office and the ministry of pensions, for dealing with certain classes of disabled soldiers, such as neurasthenics, epileptics, and others requiring institutional treatment. This further strengthens the link between the military hospitals and civil institutions. The venereal rate in the army today is no higher than it was in ordinary time of peace. The absence of statistics for the general population in the days before the war renders it impossible to say whether the total number of cases of venereal disease in the army is higher than in the corresponding portion of the civil population of corresponding age. Every effort is being made to reduce the rate still lower than it was. The National Council for the Prevention of Venereal Disease has given great assistance by providing lecturers especially chosen to lecture to troops in camps and barracks. These lectures have been largely attended and much appreciated by the soldiers.

THE PHYSICAL TREATMENT OF DISABLED SOLDIERS

The Section of Balneology and Climatology of the Royal Society of Medicine appointed a committee to investigate the physical treatment and training of disabled soldiers in France and England. After two years' work an important report has now been published. Physical treatment is asserted to be the thing most needed to prevent the formation of an army of cripples. At the British spas, large numbers of wounded have been treated by waters and baths with good results. At many military hospitals and convalescent camps, physical treatment is also being carried out. But the vocational reeducation of disabled soldiers has been in many instances carried out without medical supervision, and not associated with any concurrent physical treatment or with any systematic measurement of the patient's disability and progress. The committee does not regard this as satisfactory. On the other hand, excellent reeducational work under medical supervision has been already accomplished at the military orthopedic hospital at Shepherd's Bush and at certain of the command depots. In France, under both the French and Belgian governments, the arrangements for industrial, intellectual and agricultural reeducation are being continually extended, and are in every case under medical direction. Importance is attached by French experts to the combination of reeducation with physical treatment. The committee agrees with this, and thinks that physical treatment should in the great majority of cases be provided as an integral part of reeducation, and that the determination of a man's capacity for work ought not to depend on casual observations, but on the results of the periodic measurement of his progress by instruments.

The committee makes the following recommendations: 1. A service of physical treatment consisting of hydrotherapy, electrotherapy (including roentgenotherapy), mechanical treatment, medical gymnastics and massage should be made available at the earliest possible date for all soldiers needing it who are disabled by war. 2. Centers of physical treatment, comprising all the foregoing methods, should be established throughout the country on an adequate scale, and wherever possible in association with general hospitals, so that other forms of special treatment and diagnosis may be readily available. 3. At such centers there should be a uniform system of measurements and records. 4. Centers of reeducation and centers of physical treatment should be closely associated. 5. All centers of physical treatment should be under medical direction, with periodic inspection, and physicians who are experts in the various departments of physical treatment should be appointed to the staff. 6. At the centers first established, instruction in methods of physical treatment should be provided for the use of physicians, medical students and assistants.

Conjunctivitis from Cats

At the Royal Society of Medicine, Mr. Arnold Lawson reported three cases of conjunctivitis due to the habit of fondling cats. A girl, aged 15, had a pet Persian cat which she fondled a great deal. One day after burying her face in its fur, her eyes became suffused, and she had a severe sneezing fit. Next day the eyes were swollen, and a purulent discharge was exuding. The nostrils were also swollen, and purulent sanguineous matter was issuing from them. Cultures made from the discharge and from the cat's fur showed *Staphylococcus aureus* in abundance. Recovery took place under treatment. The second patient was a boy, aged 14, who suffered from swelling of the left eye and the cervical glands which a local physician diagnosed as mumps. It did not run the usual course of mumps; there had been no fever or pain. When seen by Mr. Lawson a fortnight later there was a brawny swelling over the parotid and in the neck, and the lids of the left eye were considerably swollen, with inflammation of the conjunctival surface of both tarsi. A mucopurulent discharge was exuding from the furrows of the swollen tissues. Tuberculosis seemed improbable on account of the rapidity of development. The boy had been in the habit of walking about with his pet Persian cat perched on his left shoulder and cuddling it. The treatment consisted in cutting, scraping, and swabbing with 2 per cent. silver nitrate. Six weeks' treatment was required, and the swelling of the glands did not subside for three months. The scrapings were cultivated, and revealed *Streptococcus longus, Streptococcus brevis* and *Staphylococcus albus*. A dog in the house and the cat were examined, and the latter was

proved to be the culprit. The third, and most severe case, occurred in a girl aged 5 years. She developed mucopurulent conjunctivitis of a mild type after nursing a favorite cat, which divided its attention between the house and a cowshed. After a time the cervical glands were involved in a serious degree. The upper lid showed an exuberant mass of cock's-comb granulations, especially on the retrotarsal tissue. Mr. Lawson suspected conjunctival tuberculosis. He cut and scraped away all the infected parts, and treated the residue with mitigated silver nitrate stick. An excellent recovery ensued after three small operations in the course of the next three months. There had been no recurrence in eyes or glands. A pathologist, Mr. Browning, pronounced the infection to be due to the bovine type of tubercle bacillus. Scrapings injected into a guinea-pig resulted in rapid wasting and death within a fortnight.

PARIS LETTER

Paris, March 8, 1917.

The War

PROLONGED GENERAL ANESTHESIA WITH ETHYL CHLORID GIVEN IN REPEATED SMALL DOSES

Dr. Cazin reported to the Society of Surgeons of Paris the excellent results which he has had from the use of ethyl chlorid as an anesthetic when treating extensive wounds, and when making dressings that ordinarily were very painful. Cazin prefers the simple compress to all other apparatus used in connection with this form of anesthesia, because it is practical. He extolled highly the value and safety of this method. Malherbe and Boureau have applied 6,275 ethyl chlorid anesthesias, including infants a few months old and adults of every age, in which there was not a single complication. Cazin has operated with ethyl chlorid for an hour to an hour and a half with excellent results.

HEMOPTYSIS OF PARASITIC ORIGIN IN SOLDIERS FROM THE FAR EAST

Salmon and R. Neveu called the attention of the Medical Society of the Hospitals of Paris to a condition which is mistaken for tuberculosis. This affection, a pulmonary distomatosis, is but little known in France, although it is common in the Orient. At present, large numbers of troops composed of men from the French colonies in the East are operating in France and, undoubtedly, some of them, at least, are infected with these distomas. If so, they may serve as infection foci, their sputum being the infectious agent. For these reasons, and because of the frequency with which hemoptysis is caused by the long distoma (*Paragonimus westermanni*) and to prevent the dissemination of these diseases, Salmon and Neveu sound this note of warning. They call attention to the ease with which the condition may be recognized by making an examination of the sputum, and finding in it blood and the eggs of the *Paragonimus*. They propose (1) that in all cases of bronchitis occurring among the Annamites or the Indo-Chinese troops the patients be, without delay, sent to a base hospital; (2) that all Asiatics who are suffering from a stubborn bronchitis, with a rusty sputum or hemoptysis be isolated immediately, and that they be furnished with sputum cups which are kept properly sterilized.

PRESENCE OF ARSENIC IN CHEMICALS AND IN FOODS

MM. Kohn-Abrest and Bouligaud have made an investigation of the industries resulting from the war and in which the chemicals used by manufacturing pharmacists and in food products might have contained arsenic. They informed the medicolegal society that it is difficult, if not impossible, to obtain hydrochloric acid which is free from arsenic. Because of the presence of arsenic in glucose, bakery goods may contain this poison.

Dr. Chassevant stated that it is impossible to obtain glucose which is free from arsenic, and therefore the use of a sugar solution in therapeutics may be fraught with danger. He proposes to use in such solution an inert sugar which would be equally useful.

THE "LEAVE OF ABSENCE TO WORK" FOR THE WOUNDED

The undersecretary of state for the sanitary service of the army has decided to give a "leave of absence to work" to some of the wounded to improve their condition. These men are permitted to work in a national industry. Consultation will be held twice a month in each physiotherapeutic center of certain regions, when the authorities will select the men to whom this measure is applicable. These men will be given leave of absence to return home and engage in their habitual occupation. While working in this capacity they will be under the supervision of the gendarmerie.

ALLIED SURGICAL CONFERENCE

The first Allied surgical conference will be held, March 15, in the museum of Val-de-Grâce, under the presidency of the minister of war.

Association News

THE NEW YORK SESSION

Garage Accommodations

The local Committee on Arrangements for the New York annual session of the American Medical Association submits the following table of garages, together with the prices for storing and caring for machines. Undoubtedly a large number of Fellows will go to New York by automobile, and it is hoped that this list will be of service in making reservations for the care of machines, and also in giving in general the prices which prevail for storage and service in New York.

GARAGE RATES FOR A. M. A. ANNUAL SESSION

Garage and Address	Overnight Storage		Weekly Storage	
	Without Service	With Service	Without Service	With Service
Aeon Garage Corporation, Broadway and 76th	$1.00	$2.00 to $2.50	$7.00	$10.00 to $12.00
Aetna Garage Company, 4506 Park Ave	0.75	1.50	4.00†	.....
Biltmore Garage, 134 East 41st	1.00	2.00 to 2.50	7.00	10.00
Blue Sprocket Garage, 139 East 31st	1.50	2.50	.....	.....
Bord's Garage, Inc., 114 West 50th	1.00	2.00	.....	10.00
Broadway and 63d Street Company	1.25	2.50	.....	10.00 to 12.00
Corvan Garage, 122 West 54th	.....	2.50	.....	.....
Equitable Garage, 8th Ave. and 49th	1.00	2.50	6.00	10.00
Fifty-Seventh Street Garage, 156 E. 57th	1.00	2.50	.....	.....
Flint Garage, 155 W. 56th	1.00	2.50	.....	.....
69th Street Garage, Inc., 147 W. 69th	1.00	3.50	.....	10.00
Gotham Garage Company, 102 W. 40th	1.50‡	.....	.....	7.00 to 10.00
Great Northern Garage, 114 W. 56th	1.00	2.50	.....	.....
Halcyon Garage Co., Inc., 236 E. 65th	$0.75 to $1.25	1.50 to 2.25	.....	.....
Hollywood Garage Corporation, 238 E. 64th	1.00	2.50	.....	15.00
Hudson Garage, 220 W. 41st	1.50	2.00	.....	.....
International Garage Co., 252 W. 40th	1.00	2.50	.....	10.00
Joselyn Garage, Inc., 112 W. 52d	1.00	2.50	.....	.....
Lexington Auto Garage, 150 E. 39th	1.00 to 1.25	2.50	.....	12.50
Monmouth Garage, Inc., 126 E. 54th	1.00	2.00	.....	10.00
St. Paul Garage, 36 W. 60th	1.50	2.50	.....	12.00

† With one washing; additional washings, $0.75 each.
‡ Washing and cleaning extra, $1.50 to $3.00.

Marriages

FRANK W. ROMAINE, M.D., Corozal, C. Z., to Miss Ellen Gray Cleland of Philadelphia, at Ancon, C. Z., February 24.

READIE GARFIELD SNYDER, M.D., New York, to Miss Theresa O'Neil of Garden City, L. I., N. Y., in Chicago, March 16.

STAFFORD BAKER SMITH, M.D., to Miss Amyah Mary Hodges, both of New York, February 24.

ALFRED ADOLPH STRAUSS, M.D., to Miss Hilda Grunsfeld, both of Chicago, March 27.

ELMER CLAYTON TERRY, M.D., to Miss Lovett, both of Washington, D. C., March 1.

Deaths

Samuel Posey Collings, M.D., Hot Springs, Ark.; Jefferson Medical College, 1870; aged 72; a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association in 1901 and 1902; a member of the American Urological Association; for a short time after his graduation demonstrator of anatomy in the Medical College of Indiana, Indianapolis, and demonstrator of anatomy and lecturer on venereal diseases in the College of Physicians and Surgeons, Indianapolis; a practitioner of Hot Springs since 1878; consulting surgeon and a member of the board of governors of St. Joseph's Hospital, Hot Springs; a director in the Arkansas National and Security banks, Hot Springs; one of the most esteemed and beloved practitioners of that city; died at his home, March 16, from hypostatic pneumonia.

Moses James White, M.D., Hartford, Conn.; New York University, New York, 1884; aged 57; assistant physician to the New York City Asylum for the Insane for three years after his graduation, and afterward first assistant physician to the Milwaukee County Hospital for the Insane, Wauwatosa, and then superintendent from 1888 to 1915; a Fellow of the American Medical Association, and a member of the American-Medico Psychological Association; clinical professor of insanity in the Wisconsin College of Physicians and Surgeons and professor of mental diseases in Marquette University, Milwaukee; consulting physician to Milwaukee County Hospital and the Milwaukee Asylum for the Chronic Insane; a frequent contributor to the literature of insanity; died in Hartford, March 14.

David Porter Morgan, M.D., Clarksburg, W. Va.; Jefferson Medical College, 1876; aged 73; formerly a Fellow of the American Medical Association; a member of the West Virginia State Medical Association; a veteran of the Civil War; local surgeon of the Baltimore and Ohio System since 1893; a member of the state board of health in 1901 and made president of the board in 1905; president of the West Virginia State Medical Association in 1893, and at one time president of the Harrison County Medical Society; for several years president of the West Virginia Educational Association; died at his home, March 10, from acute gastritis.

William Blackwell Welch, M.D., Fayetteville, Ark.; University of Nashville, Tenn., 1859; aged 88; a Fellow of the American Medical Association; one of the founders of the Washington County Medical Society, and one of the founders and first president of the Arkansas Medical Society; one of the leading citizens of northwest Arkansas; brigade surgeon in the Confederate service during the Civil War; president of the hospital board which built the Fayetteville City Hospital; died at his home, March 9, from cerebral hemorrhage.

Newton J. Phenix, M.D., Colorado, Texas; Tulane University, New Orleans, 1890; aged 56; a Fellow of the American Medical Association, and since 1912 councilor of the El Paso-Big Springs District Medical Society; secretary from 1904 to 1910, and president in 1910 and 1911; health officer of Mitchell County; president and senior member of the local board of education; proprietor of the Phenix Sanitarium, Colorado; died, Dec. 30, 1916, from gunshot wounds inflicted by a former employee with homicidal intent.

Albert Eugene Ham, M.D., Providence, R. I.; College of Physicians and Surgeons in the City of New York, 1868; aged 73; a Fellow of the American Medical Association, and formerly president of the Providence Medical Association; consulting physician to St. Mary's Orphanage and the Providence Dispensary, and formerly visiting physician to the Rhode Island Hospital; died at his home, January 24, from carcinoma of the stomach.

David Gochenauer, M.D., San Diego, Calif.; University of Pennsylvania, Philadelphia, 1868; aged 72; a Fellow of the American Medical Association; formerly president of the San Diego County Medical Society, president of the San Diego Chamber of Commerce and professor of medical diagnosis in the College of Physicians and Surgeons, Los Angeles; died at his home, February 20, from heart disease.

Charles F. Swan, M.D., Chicago; Medical College of Ohio, Cincinnati, 1875; aged 64; a Fellow of the American Medical Association; a pioneer practitioner of South Chicago; chief of staff of the South Chicago Hospital; from 1900 to 1902 a member of the staff of Cook County Hospital; who established the first bank in South Chicago; died at his home, March 19, from cerebral hemorrhage.

Henry Lee Williford, M.D., Bartlett, Tenn.; New York University, New York, 1880; aged 62; for many years a practitioner of Bartlett; formerly professor of materia medica and therapeutics in Memphis Hospital Medical College; president of the Shelby County Board of Health from 1880 to 1892; a member of the Memphis school board; died at his home, February 28, from pneumonia.

Frederick James Will, M.D., Des Moines, Iowa; University of Iowa, Iowa City, 1883; aged 57; a Fellow of the American Medical Association; medical director of the Bankers' Life Insurance Company, Des Moines; district surgeon to the Chicago and Northwestern System; colonel and surgeon-general of Iowa from 1907 to 1909; died in San Antonio, Texas, March 7, from arteriosclerosis.

Clotworthy Birnie, M.D., Taneytown, Md.; University of Pennsylvania, Philadelphia, 1870; aged 73; a Fellow of the American Medical Association; president of the Medical and Chirurgical Faculty of Maryland, 1899-1900; formerly president of the Carroll County Medical Society; died at his home, March 16, from cerebral hemorrhage.

Charles C. Deming, M.D., Friendship, N. Y.; New York University, New York, 1869; formerly a member of the Medical Society of the State of New York, and president of the Allegany County Medical Society; proprietor of a sanatorium for several years and at one time health officer of Friendship; died at his home, March 5.

Ralph Root Hollopeter, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1912; aged 29; a Fellow of the American Medical Association, and a member of the Philadelphia Laryngological Society; a member of the faculty and staff of his alma mater; died at Asheville, N. C., March 12, from pneumonia.

Leonard Franklin Dozier, M.D., San Francisco; Oglethorpe Medical College, Savannah, Ga., 1859; aged 80; at one time professor of materia medica in his alma mater; a Confederate veteran; for twenty-nine years medical superintendent of the California State Hospital, Napa; died at his home, March 9.

John Ryland Eaton, M.D., Chittenango, N. Y.; Syracuse, N. Y., University, 1875; aged 67; a member of the Medical Society of the State of New York; for more than twenty-five years health officer of the town of Sullivan; at one time president of the village of Chittenango; died at his home, March 12.

Henry Everett Hays, M.D., Attica, Kan.; University Medical College, Kansas City, Mo., 1900; aged 40; a Fellow of the American Medical Association; health officer of Harper County; local surgeon to the Santa Fe System; died at his home, March 11, from chronic interstitial nephritis.

Daniel W. Bortz, M.D., St. Lawrence, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 61; died at his home, March 4, from uremia.

Preston H. Sharp, M.D., Pontiac, Mich.; Columbus (Ohio) Medical College, 1884; aged 68; died at his home, Dec. 13, 1916, from cerebral hemorrhage.

Thomas Richard Baldwin, M.D., Waco, Texas; Eclectic Medical Institute, Cincinnati, 1890; aged 61; died at his home, January 16, from pneumonia.

Daniel Galbraith, M.D., Dresdon, Ont.; University of Toronto, Ont., 1868; aged 76; died at his home, Dec. 20, 1916, from cerebral hemorrhage.

J. G. Pickering, Zavalla, Texas (license, years of practice, Texas, 1907); aged 99; died at the home of his daughter near Zavalla, February 4.

Carl M. Bock, M.D., Greenville, Mich.; University of Erlangen, Germany, 1876; aged 64; died at his home, March 5, from pneumonia.

Peter Franklin Eagle, M.D., Troy, Ohio; Washington University, St. Louis, 1878; aged 60; died at his home, March 3, from pneumonia.

Willard Remington Baker, M.D., Tombstone, Ariz.; University of Minnesota, Minneapolis, 1912; aged 34; died recently at his home.

Dias S. Smith, Upper Sandusky, Ohio (license, Ohio, 1896); aged 62; died at his home, February 22, from valvular heart disease.

Emanuel H. Gebauer, M.D., Indianapolis; Barnes Medical College, St. Louis, 1897; aged 45; died at his home, March 7.

Frank Hanson, M.D., Worden, Ill.; Rush Medical College, 1888; aged 51; died in Joliet, Ill., recently, from pneumonia.

William T. Lively, M.D., Buffalo, Ky.; University of Louisville, Ky., 1875; aged 73; died at his home, January 18.

Correspondence

Compulsory Health Insurance

To the Editor:—The numerous letters on health insurance contained in THE JOURNAL, March 10, 1917, prompt me to remind your readers of one or two facts which have been overlooked by your correspondents.

It is suggested by Dr. Albert Bowen of Rochester, N. Y., that the remedy for inadequate wages, insufficient to meet the expenses of illness, is higher wages. To this we should all subscribe. However, those of us who face the practical questions realize, just as the Massachusetts Commission on Social Insurance has pointed out, that there is no immediate prospect of a sufficient increase in wages to enable the American wage earner to bear the full cost of sickness. Even if a rise of wages should occur, the incidence of sickness is so uncertain that it is essentially an insurable proposition. For example, the Social Insurance Commission in California found that from a group of 600 persons, more than one half of the total amount expended for medical care by the group was spent by twenty-one individuals. The uncertainty of sickness makes it desirable to insure one's health, just as persons of means insure their property against the risk of fire.

Moreover, we realize that it is unjust to place the full cost of sickness on the worker, whereas industry, because of its long hours, its often dusty, ill ventilated, poorly lighted workrooms, and even the poisons handled, is responsible for much illness. It is only a matter of justice that the employer should be expected to bear this portion of his human repair bill, just as he now bears that portion already covered by the workmen's compensation laws. Legislative action is the only method by which the responsibility of industry for illness can be placed on industry.

Another correspondent, Dr. W. D. Chapman, refers somewhat disparagingly to the free choice among the panel physicians under the British insurance act. In practice, the insured workers of Great Britain have had free choice among practically all of the physicians previously practicing in the industrial districts. Moreover, it should be borne in mind that the act there, as well as the bill introduced in the American legislatures, provides that all physicians desiring to practice under the act may join the panels.

So far from attempting to exploit the medical profession, the drafters of the health insurance bills have taken unusual pains to consult with physicians. If the medical provisions of the bill, as now drafted, are unsatisfactory, it is because the profession has been slow in offering constructive suggestions. From the outset, criticism and suggestion have been most cordially invited, and are still welcome.

I cannot help but feel that the opening of the columns of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for a free discussion of this question will be a most important factor in calling forth constructive suggestions from your readers.

JOHN B. ANDREWS, New York.
Secretary, American Association for Labor Legislation.

To the Editor:—In Public Health Bulletin 76, on "Health Insurance, Its Relation to the Public Health," p. 44, it says:

> It must be evident that the average wage worker's family with an income of $750, if it must spend $650 on food, rent, clothing and fuel and light, has very little surplus available for extraordinary expenses. Out of the remaining $100 must come the funds for amusements and recreation, books, papers and magazines, lodge and union dues, benefit and insurance premiums, sickness, upkeep of household and kitchen furnishings and the hundred-and-one incidental expenditures that are common to the most frugal households. A death in the family is a heavy expense; the birth of an additional member of the family is a cause not only of lessened family income where the wife is a wage earner, but also of immediate expense and the promise of increasing cost in the future. For we are speaking of the "average" family with an income of $700 to $800 a year, which is considered adequate if everything "goes right." But sometimes things "go wrong."

This statement indicates that the invisible hand back of the health insurance bill is capital, for it admits that the physician is necessary to the laboring man, but does not provide for any increase in wage to meet the necessity. Instead it aims to obtain the physician's services free of charge. A slave owner will give to his slave what is best to obtain the best work from him. This scheme will give the same to the laborer, but aims to obtain the physician's part practically free.

Compulsory health insurance pretends to assist the poor while it robs them of their independence. Nearly all physicians have taken care of confinements for anywhere from the tenth to the thirteenth child when the entire family with the boarders have lived in one room, children sleeping on the floor with the same ragged clothing that they wear through the day, boarders standing around while labor is in progress, and no change of clothing for the mother after the baby has been born.

Health insurance will not help situations like this, for the physician does not expect to receive any fee for his services; but it will make matters worse by furnishing a heartless, overworked, 15-cent-a-call contract physician in place of a physician with a kind heart, who gladly donates his services to help humanity. A mercenary, overworked contract physician would not take the necessary time to care properly for a woman in labor and would thus increase sickness, misery and suffering. Compulsory health insurance is a step backward and tends to degrade both the physician and the laborer. If the laborer must have health insurance, then make it voluntary and give him a certain benefit without dictating to him as to the physician he should employ or the amount he should pay him.

GEORGE N. JACK, M.D., Buffalo.

The Diagnosis and Serum Treatment of Anterior Poliomyelitis

To the Editor:—May I draw the attention of the author and your readers to a misleading error contained in the paper by Dr. Zingher on this subject (THE JOURNAL, March 17, 1917, p. 817)? In the opening paragraph Dr. Zingher states that the treatment of poliomyelitis by means of immune serum was recommended by Netter, and that "later, Flexner and Lewis carried out some experimental work in monkeys, and showed that the intraspinal injection of immune serum twenty-four hours before the intracerebral inoculation of a fatal dose of virus acted as a preventive against the disease."

Any one examining the footnote accompanying the article would be mystified by the quotation, since the two papers referred to by Netter and his co-workers are dated 1915 and 1916, respectively, while the two papers of Flexner and Lewis were published in THE JOURNAL, May 28 and Aug. 20, 1910.

It will be particularly illuminating to quote what Netter himself says of the serum treatment in the first paper which he published on the subject with his co-workers Gendron and Touraine in the *Comptes rendus des séances de la Société de biologie* (1911, **70**, 625). They say:

> Flexner and Lewis conceived the idea of injecting the serum into the spinal canal for several consecutive days, a method which gives good results in cerebrospinal meningitis, and the necessity for which is justified by the fact that the serum, being rapidly absorbed by the blood, immediately leaves the spinal canal. They obtained favorable results by this method. In fact, the disease was prevented from developing provided the injections of serum were begun as early as eighteen to twenty-four hours *after* the introduction of the virus. . . . The same good results were obtained by means of immune serum in the case of a monkey treated on the day of inoculation (by the nasal route) as well as three and six days later. Human serum collected from persons who had had poliomyelitis a long time before was equally active against the poliomyelitis of the monkey.
>
> The experiments of Flexner and Lewis show the possibility of serotherapy for experimental poliomyelitis, but the serum, in order to produce good results, must be injected every day during the first days of sickness . . . . We do not see how one can begin treatment as early as this in human cases. It is true that in man poliomyelitis is less serious than in the monkey. The mortality is decidedly less, scarcely 10 per cent. of all cases, instead of more than 50 per cent.; the development is less rapid.

They then proceed to describe the employment of the serum from recovered individuals in four acute cases of poliomyelitis.

In other words, the experimental observations of Flexner and Lewis furnished the immediate starting point of the

serum treatment of poliomyelitis in man, and showed that the immune serum of recovered monkeys and human beings has protective power when given to monkeys not in advance of, but as long as twenty-four hours after an intracerebral inoculation of the poliomyelitic virus.

HAROLD L. AMOSS, M.D.

The Rockefeller Institute for Medical Research, New York.

The Shortage of Salvarsan

March 19, 1917.

To the Editor:—In THE JOURNAL, March 10, 1917, p. 785, there appeared a comment on the salvarsan situation in this country at the present time. As I am particularly interested in obtaining salvarsan, I wrote to Senator Hoke Smith, enclosing the article from THE JOURNAL. The letter to Senator Smith was as follows:

Hon. Hoke Smith,
U. S. Senate, Washington, D. C.

Dear Sir:—As one of the physicians of your constituency, I write to direct your attention particularly to the shortage of salvarsan in this country. This subject is briefly but well presented in the enclosed editorial clipped from the last copy of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Those of us who are engaged in active practice encounter a very large number of cases of ill health, the primary cause of which is syphilis. Salvarsan has proved to be of wonderful efficiency in the treatment of these cases. In the state of Georgia, and in the city of Atlanta, there is a great demand for this remedy, which frequently produces results obtained by no other substance. However, the time has come when it is impossible to obtain this except at exorbitant prices from such individuals as have bought up the visible supply.

In view of our present relations with Germany, would it not be possible for Congress to provide relief for the situation so that this remedy may be available?

Senator Smith replied as follows:

March 17, 1917.

Your letter of the 12th in regard to the manufacture of salvarsan has been duly received.

I will take the matter up with Senator James, chairman of the Committee on Patents, and see what can be done.

It occurs to me that it would be advisable for physicians in various parts of the country to write to their representatives in Congress, and to Senator James, chairman of the Committee on Patents, urging the abrogation of the special privileges granted in connection with the manufacture of salvarsan, and also urging that steps be immediately taken for the production of the preparation in this country.

LEWIS M. GAINES, M.D., Atlanta, Ga.

Health and Athletics

To the Editor:—Physicians working in colleges have an opportunity to obtain facts concerning the influence of athletics on the health of young men. The accompanying table gives the result of a short analysis made after the routine examination of 745 new students at the Pennsylvania State College health service last fall.

The data were obtained partly from a careful past history included at the examination. The conditions selected for comparison are in our experience the most frequent and representative of health and disease in young men.

In the table, the first column of figures gives general percentages for the entire 745 students who gave a history of previous competitive athletics averaging 2.8 months during each of 1.8 years. The second column gives the same for 100 students selected for maximum athletic experience. Their average is 8.1 months for each of five years.

COMPARATIVE INFLUENCE OF GENERAL ATHLETICS AND MAXIMUM ATHLETIC EXPERIENCE

Condition	Percentage	
	General	Maximum
Previous sore throats	45	44
Previous tonsillitis	24	38
Previous head colds	29	25
Previous boils	18	26
Previous constipation	9	16
Those taking laxatives regularly (at least once a week)	10	18
Those wearing glasses	21	24
Those having diseased tonsils	20	21
Those having definite acne	13	8
Those having dental caries, marked	8	4

WARREN E. FORSYTHE, M.D., State College, Pa.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HEART MURMUR IN AORTIC LESION—RELATION OF HEART DISEASE TO LABOR

To the Editor:—Kindly discuss the following questions:

1. In aortic regurgitation with probable stenosis do we often have a murmur so transmitted to the radial as wholly to mask the succession of sounds following the systolic reading? This murmur is harsh, high pitched, and heard with ease over the right radial at the wrist.

2. What is the most plausible explanation for this transmission to the right but not to the left radial?

3. Could there be a relation between such transmission and a systolic pressure 15 to 25 mm. (Tycos) higher in the right arm than in the left? Blood Pressure, systolic, respectively, 130 to 145; 115 to 130; diastolic, respectively, 10 to 30?

4. This patient, a woman, aged 24, with good family history and negative past history except for acute rheumatic fever eleven years ago with endocarditis, has since had three attacks of cardiac decompensation, the last four weeks ago, when the patient was seven months' pregnant, at which time there was a process in the lower lobe of the left lung, the symptoms of which with the physical signs strongly suggested lobar pneumonia. There is one child, aged 2½, at whose birth labor was easy. Compensation has now been regained.

What is the prognosis for spontaneous delivery at term? What is the present concensus of expert opinion as to the management of a case like this, the choice of method of delivery?

O. B. LYNCH, Littlefield, Texas.

ANSWER.—1. We assume that "probable stenosis" of the aortic valve is a correct diagnosis. This assumption is supported by necropsy experience that when a lesion of the aortic valve occurs following rheumatism or similar infections, there is usually some stenosis as well as incompetence of the valve. The loudness of the murmur (transmission far out in the peripheral arterial system) also argues for aortic stenosis, although the systolic thrill palpable over the right second interspace and surrounding region which is looked for in such cases is not mentioned. The loud, harsh systolic murmur of aortic stenosis is often heard in the carotid and subclavian, and occasionally may also be heard, as in the case described, in the arms to the radials.

2 and 3. Under the conditions described (age and probable etiology) the difference in blood pressure between right and left sides suggests that the flow of blood to the left arm is not as free as to the right, a condition which might be brought about by difference in vessel caliber or from pressure from without; any such condition would impede the transmission of vibration, and tend to reduce the distance to which the murmur could be transmitted.

4. The lesion in the lung which occurred in association with a period of broken compensation may of course have been a lobar pneumonia, but pulmonary infarction, which is often seen under such circumstances with pain, bloody expectoration and fever, would have to be considered, as also passive congestion with possibly pleural effusion.

In a woman with an aortic lesion in whom compensation has been repeatedly broken, once during the present pregnancy, we should regard the prognosis for safe delivery at term very doubtful.

Special conditions not mentioned in the necessarily abreviated description given in the question may modify the indications for treatment; but assuming that no such unusual conditions exist, we believe the following plan would receive the approval of obstetricians. In a multipara with normal pelvis (easy labor two and a half years ago), with the heart lesion described, in whom pregnancy has advanced to the seventh month, labor should be induced only if compensation has begun to fail. If compensation is maintained labor at term should be allowed to procede to the end of the first stage and then instrumental delivery employed.

ALCOHOLISM

To the Editor:—1. What percentage of deaths are directly or indirectly due to alcoholic poisoning?

2. What are the most common diseases caused?

3. Relatively, how are men and women affected by alcohol?

A. ALLEN JOHN, M.D., Oregon, Ill.

ANSWER.—1. Obviously there are no exact figures available to answer this question.

2. There are numerous diseases supposedly indirectly related to alcoholism; among them are arteriosclerosis, cirrhosis of the liver, nephritis, gastritis and various psychoses. The question of venereal disease control is inextricably mixed up with the control of alcoholism. The diseases or conditions specifically caused by alcohol are alcoholism and delirium tremens.

3. In general, alcoholism may be stated to have the same effects in both men and women. Response to it varies frequently with the psychologic status of the individual. The following is a list of references to articles on the subject:

Heron, David: A Second Study of Extreme Alcoholism in Adults, University of London, Francis Galton Laboratory for National Eugenics, Eugenics Laboratory Memoirs XVII, Dulau & Co., Ltd., 37 Soho Square, West, London, 1912, price 5 shillings net.

O'Mailey, Austin: The Cure of Alcoholism, B. Herder, 17 South Broadway, St. Louis, 1913.

Atwater, W. O., et al.: Physiological Aspects of the Liquor Problem, Houghton, Mifflin & Co., Boston and New York, 1903, 2 volumes.

Mason, Lewis D.: The Present Status of the Results of the Study of Alcohol in America, *Jour. Inebriety*, July, 1913; this may be obtained in reprint form from the author, 71 Jerolomon Street, Brooklyn.

Mason, Lewis D.: The Etiology of Alcoholic Inebriety, with Special Reference to Its True Status and Treatment from a Medical Point of View, *Month. Cycl. and Med. Bull.*, September, 1910.

Emerson, Haven (Commissioner of Health, New York): The Duty of Health Departments on the Alcohol Question, Publication 50, Reprint Series, October, 1916, New York City Department of Health.

Drunkenness in Massachusetts, Conditions and Remedies, Special Report of the Board of Trustees of the Foxboro State Hospital, 1910, Wright and Potter, State Printers, 18 Post Office Square, Boston.

Maus, L. Mervin (colonel U. S. Army Medical Corps): Alcohol and Officials, etc., reprint from the *Journal of the Military Service Institution*, 1912.

The Relation of Alcohol and Tobacco to Personal Hygiene and Public Health, Health Bulletin 3 (Series 1911-1912), University of Wisconsin, Madison.

The Liquor Problem and Public Health, *Bull. North Carolina State Board of Health*, December, 1912, W. S. Rankin, Secretary and Treasurer, Raleigh, N. C.

First Annual Report of the Board of Inebriety of the City of New York, 1913.

Treatment of Public Intoxication and Inebriety, Publication 108, State Charities Aid Association of New York, March 20, 1909, United Charities Building, 105 East Twenty-Second Street, New York.

Fisher, Irving: The Attitude of the College Man Toward Alcohol, Reprinted from the Eli Spring Book, May, 1915; Sale of Intoxicating Liquors, Washington, Government Printing Office, 1912. Refer to 42108-12-1 when ordering.

Phelps, Edward Bunnell: The Mortality of Alcohol, a Statistical Approximation of the Deaths in the United States in Which Alcohol May Figure as a Causative or Contributory Factor, Thrift Publishing Company, New York, 1911. This book should give much of the information desired.

The *Metropolitan*, published by the Metropolitan Life Insurance Company of New York, Volume 25, No. 11, contains a number of articles along this line.

VEDDER'S STARCH MEDIUM

To the Editor: Where can I find a description of the preparation of Vedder's starch culture medium which Dr. Charles F. Craig mentioned in his article on "The Complement Fixation Test in the Diagnosis of Tuberculosis" (THE JOURNAL, March 10, 1917, p. 773).

Kindly use my initials if published in THE JOURNAL. E. W. W.

ANSWER.—The starch medium devised by Captain Vedder for the cultivation of the gonococcus is thus described in the *Journal of Infectious Diseases*, May, 1915, p. 385:

The medium consists of beef infusion agar to which 1 per cent. of starch has been added. Beef infusion is prepared according to the usual method employed for making beef broth. Commercial meat extracts do not give as good results. To the beef infusion sufficient agar is added to make from 1.5 to 1.75 per cent. agar. No peptone or salt is added, since the gonococcus appears to grow better on mediums without peptone or salt. If much more than this amount of agar is added, the medium will be too dry. This mixture is cooked, clarified and filtered according to the method of preparing ordinary agar. It is then neutralized so that the final reaction will be from 0.2 to 0.5 per cent. acid to phenolphthalein. Ten gm. of cornstarch to each liter are now added to this medium. It is well to grind up the cornstarch in a mortar with a little of the agar in order to avoid lumps. Cornstarch has been found by experiment to be the best form of starch, and about 1 per cent. is the optimum amount. After the addition of the cornstarch the mixture is boiled for a few minutes, and then tubed and sterilized at not more than 15 pounds' pressure to avoid breaking down the starch. The medium will be slightly clouded, owing to the presence of the cornstarch.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

ARKANSAS: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

ARKANSAS, ECLECTIC: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

ARKANSAS, HOMEOPATHIC: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

CALIFORNIA: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

COLORADO: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

HAWAII: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.

IDAHO: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

ILLINOIS: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.

MINNESOTA: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

MONTANA: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

NEVADA: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

NEW MEXICO: Santa Fé, April 9. Sec., W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

PORTO RICO: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

RHODE ISLAND: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

UTAH: Salt Lake City, April 2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Minnesota June Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, June 6-10, 1916. The total number of subjects examined in was 18; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 40, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1914)	83
Northwestern University		(1916)	88.9
Rush Medical College	(1896) 86.3;	(1916)	82.4, 86.8
University of Illinois		(1915)	85.2
Minnesota College of Physicians and Surgeons		(1904)	75.1
University of Minnesota (1916) 83, 84.4, 85.3, 85.7, 85.8, 85.8, 86.2, 86.2, 86.4, 86.5, 86.5, 86.6, 86.7, 87, 87, 87.6, 87.7, 87.9, 87.9, 87.9, 88, 88, 88, 88.1, 88.4, 88.4, 88.7, 89, 90, 90, 90; (1917) 83.			
Laval University		(1913)	76.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College		(1911)	Illinois
Chicago Homeopathic Medical College		(1894)	Indiana
Northwestern University		(1911)	Illinois
Medical College of Indiana		(1898)	Indiana
Medical College of Ohio		(1907)	Indiana
Marquette University		(1915, 2)	Wisconsin

Arizona October Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Oct. 3-4, 1916. The total number of subjects examined in was 10; total number of question asked, 100; percentage required to pass, 75. The total number of candidates examined was 20, of whom 16 passed, including one osteopath, and 4 failed, including 1 osteopath, and 1 other drugless practitioner. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles		(1915)	79.7
College of Physicians and Surgeons of San Francisco		(1913)	75.8
University of California		(1912)	81.8
National University		(1900)	75.6
Chicago College of Medicine and Surgery		(1916)	78.1
Rush Medical College		(1910)	79.9
University of Illinois		(1914)	84.2
State University of Iowa, Homeopathic		(1893)	69.8*
Baltimore Medical College		(1904)	81.2
University of Michigan Medical School		(1916)	77.4
St. Louis University		(1905)	86
Kinmamota Special Medical School		(1909)	78.9
Okayama Special Medical School		(1902)	75.3
Sai Sei Medical College	(1899) 72.7*;	(1901)	71.4*

	FAILED		
Arkansas Industrial University		(1884)	52.5
George Washington University		(1905)	50.7

* Credit allowed for years of practice.

Texas November Report

Dr. J. S. McCelvey, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Fort Worth, Nov. 14-16, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 17, of whom 13 passed, and 4 failed, including 1 osteopath. Thirty-two candidates were licensed through reciprocity, including 4 osteopaths and 1 nongraduate. One candidate was granted a license under a special exemption clause. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Louisville	(1914)	76
Syracuse University	(1901)	81
University of Oklahoma	(1916)	92
Meharry Medical College	(1915) 76; (1916)	78
Memphis Hospital Medical College	(1909)	75
University of West Tennessee	(1915)	78
Vanderbilt University	(1916)	84
University of Texas	(1915) 87,	87
Mexico City University*	(1910)	77
National School of Medicine, Mexico	(1900)	75
University of Valencia, Spain	(1907)	75
FAILED		
Atlanta Medical College	(1915)	66
Meharry Medical College	(1916)	60
University of West Tennessee	(1913)	49

* The name of this college does not appear in the official list of Mexican medical colleges.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Arkansas	(1911)	Oklahoma
Atlanta School of Medicine	(1907) Georgia; (1912)	Oklahoma
Hospital Medical College, Atlanta	(1909)	Arkansas
Bennett Coll. of Eclec. Med. and Surg.	(1908)	Arkansas
Rush Medical College	(1893)	Kansas
Louisville Medical College	(1894)	Oklahoma
College of Physicians and Surgeons, Baltimore	(1914)	Maryland
University of Maryland	(1897)	Maryland
Eclectic Medical University	(1911)	Arkansas
Medical College of Ohio	(1895, 2)	Ohio
University of Pennsylvania	*	Penna.
Memphis Hospital Med. Coll. (1888) Kentucky; (1896) Arkansas; (1911) Tennessee; (1911) Mississippi.		(1898)
University of Memphis	(1911)	Tennessee
University of Nashville	(1898)	Tennessee
University of Tennessee	(1892) (1914) (1913)	(1915) Arkansas Mississippi
Vanderbilt University	(1882) (1915) Arkansas; (1914)	Tennessee

College	LICENSED UNDER SPECIAL EXEMPTION CLAUSE PASSED	Year Grad.	Total No. Licensed
Boston University		(1893	1

* Date of graduation not given; graduation not verified.

Maryland December Report

Dr. J. P. McP. Scott, secretary of the State Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, Dec. 12, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 36, of whom 27 passed and 9 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1915)	77
Loyola University	(1916)	75
College of Physicians and Surgeons, Baltimore	(1915)	82
Johns Hopkins University	(1915) 90, 92; (1916) 78, 88, 92.	
Maryland Medical College	(1912)	77
University of Maryland	(1914) 76, 81; (1915) 80, 87; (1916)	76, 78, 78, 79, 80, 80, 81, 84, 84.
Medico-Chirurgical College of Philadelphia	(1916)	83
Woman's Med. Coll. of Pennsylvania	(1914)	85
Medical College of Virginia	(1915) 79; (1916)	78
University of Toronto	(1910)	81
FAILED		
Bennett Medical College	(1914)	*
Chicago College of Medicine and Surgery	(1916)	71
Coll. of Phys. and Surgs., Baltimore	(1915)	74
Johns Hopkins University	(1916)	*
Maryland Medical College	(1904)* (1913)	*
University of Maryland	(1916)	70, *,*

* No grade given.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
George Washington University	(1898) (1915)	Dist. Colum.
Georgetown University	(1889)	Dist. Colum.
University of Georgia	(1916)	Georgia
American Medical Missionary College	(1904)	Wisconsin
Kentucky School of Medicine	(1892)	So. Carolina
Coll. of Phys. and Surgs., Baltimore	(1907) (1911)	W. Virginia
Jefferson Med. Coll. of Philadelphia	(1902)	Penna.
University of Pennsylvania	(1905)	Penna.
Meharry Medical College	(1914)	Tennessee

Book Notices

SYPHILIS. By Loyd Thompson, Ph.B., M.D., Physician to the Syphilis Clinic, Government Free Bath House. Hot Springs, Ark. Cloth. Price, $4.25 net. Pp. 415, with 84 illustrations. Philadelphia: Lea & Febiger, 1916.

In this, the newest text on syphilis, Dr. Thompson has undertaken to cover the entire subject, considering syphilis not only in general, but also in its special manifestations in the various tissues of the body. His book gives a good exposition of our present knowledge of the disease. For so large a subject, however, he has assigned himself a rather limited space, so that the consideration of many topics is of necessity extremely brief. The greatest criticism to be made against the book is that it is not well balanced. The clinical history of syphilis—its development, its clinical course and its general symptoms—is covered in fifty pages, and it cannot be said to be given with adequate fulness. The same criticism applies to many other subjects, notably to the important subjects of syphilis of the vascular system and of the nervous system. On the other hand, some clinical subjects, such as syphilis of the bones and joints, are considered fully. The chapter on the laboratory aspects of syphilis—on the *Spirochaeta pallida* and on the serum complement reaction—and the chapter on the treatment of syphilis are full and complete. Dr. Thompson belongs to the radical school as regards the treatment of syphilis, and he gives a satisfactory statement of the present vigorous methods of treatment. Altogether, the book is a good summary of our present knowledge of syphilis, and gives abundant evidence of first hand experience with the disease.

THE PREVENTION OF DISEASE. A Popular Treatise. By Kenelm Winslow, B.A.C., M.D., Attending Physician to Seattle City Hospital. Cloth. Price, $1.75 net. Pp. 348. Philadelphia: W. B. Saunders Company, 1916.

This work, by the author of "The Production and Handling of Clean Milk," was written for the public. It opens with a foreword by Charles Mayo, and important subjects throughout the book are introduced by authorities in various fields, who commend the work to the public. The opening chapters discuss tea, coffee, alcohol and drugs, and devote space to an extended consideration of personal hygiene. There is a chapter on the prevention and cure of cancer and one on sexual hygiene and diseases. Prevention of the diseases of childhood is especially well treated. The book is well indexed and attractively bound.

PHYSICAL EXAMINATION AND DIAGNOSTIC ANATOMY. By Charles B. Slade, M.D., Chief of Clinic in General Medicine, Bellevue Hospital Medical College. Second Edition. Cloth. Price, $1.25 net. Pp. 150, with 40 illustrations. Philadelphia: W. B. Saunders Company, 1916.

In this book the elementary principles of the physical examination of the body, and the location of the normal anatomic structures and features important in diagnosis are described for the student. The book is not intended to take the place of teacher, but to serve as a basis of instruction to be amplified by one. The importance of systematic procedure, and the training of the eye, the ear and the hand are emphasized. No other methods or instruments of precision are mentioned except the simple form of the binaural stethoscope.

HEALTH AND DISEASE: THEIR DETERMINING FACTORS. By Roger I. Lee, M.D., Professor of Hygiene, Harvard University. Cloth. Price, $1.75. Pp. 378. Boston: Little, Brown & Co., 1917.

Lee believes that the sanitarian can gain intelligent cooperation only by instruction of the public. In this book he discusses heredity and environment; food; air; exercise and work; light and the eyes; the hygiene of the nervous system; communicable, air-borne, contact, insect-borne and ingestive diseases; milk; sewage disposal; occupational diseases, and sexual hygiene. While the book is designed for lay readers, physicians will find it well worth reading. It should be of benefit to those who wish to keep well and help others in their community to do the same.

Medicolegal

Physicians and Surgeons Restricted in Right to Practice Dentistry

(People vs. Blair (Mich.), 158 N. W. R. 889)

The Supreme Court of Michigan affirms a judgment of conviction of the defendant of having violated the statute regulating the practice of dentistry, although it was conceded that he was a duly licensed physician and surgeon. The court says that he contended that he had the right to extract teeth and to advertise that he would do so, under his license as a physician and surgeon; that as he had a right to perform minor surgery by virtue of his medical certificate, and as it was conceded that the extracting of teeth is minor surgery, he therefore asserted that he was not guilty of the offense charged. The difficulty with his position was that he assumed that the right he once enjoyed as a physician and surgeon to extract teeth could not be taken away from him by the legislature without invading his constitutional right. The right of the legislature to regulate the practice of medicine and dentistry is beyond controversy. Questions affecting the public health, safety and morals of the people are subject to regulation by the legislature under the police power of the state. The legislature has indicated an intention of making the practice of medicine and dentistry two distinct professions by prescribing the conditions and qualifications under which one may practice them. It has made all persons subject to the dental act save physicians and surgeons, for which it created some exceptions. It has stated in express language in the exception what physicians and surgeons may do, and therefore the court must decline to read into the act any implied exceptions in their favor. As the right to practice dentistry and to advertise to do so does not come within the exceptions, the defendant was not thereby protected from the penal provisions of the act. Nor can the court agree with the contention that, as the medical act was passed twelve days after the passage of the dental act at the session of 1913, it should be construed as amending by implication the dental act. Such a construction would be opposed to the trend of legislation. The several acts heretofore passed by the legislature regulating the practice of medicine and dentistry have indicated its intention of separating these professions and making them two distinct professions. By the medical act the legislature has conferred in general terms the right on physicians and surgeons to practice surgery; but by the use of particular words in the dental act it has indicated its intention of restricting the scope of that general right where it overlaps into the field of dental surgery, and therefore the court must hold that physicians and surgeons have no right to practice dentistry except as permitted by the provisions of the act. The court thinks this is a reasonable construction of the legislation and is consistent with the obvious policy of the legislature to make the practice of dentistry a distinct profession.

Validity of Proceedings and Law Against Advertiser

(State Board of Medical Examiners vs. Macy (Wash.), 159 Pac. R. 801)

The Supreme Court of Washington affirms a judgment of the superior court which affirmed a decision of the state board of medical examiners revoking the license of the defendant, an osteopath. The court holds that where there is nothing in the record before it indicating that the sufficiency of the complaint was in any manner challenged before the state board of medical examiners or in the superior court, so that it must be concluded that its sufficiency is challenged in the supreme court for the first time, this fact calls for a most liberal construction of its allegations looking to the sustaining of the judgment, even if the proceedings should be regarded as purely judicial. It seems to be well settled by the authorities, however, that proceedings of this nature are not purely judicial, in the sense that they must be attended by the strict rules of pleadings and procedure incident to actions at law. The complaint here, after charging that the defendant "advertised his medical business" in certain named newspapers in Seattle and Tacoma on certain specified dates, charged: "That such advertising of his medical business was intended and has a tendency to deceive the public and impose upon credulous and ignorant persons and so be harmful and injurious to public morals or safety. That such advertisements consist in part in advertising of medicine or of means whereby the monthly periods of women can be regulated, or the menses reestablished if suppressed." This quoted portion of the complaint followed in substance the language of Subdivisions 3 and 4 of section 8397½, Rem & Bal. Code, defining unprofessional conduct for which the licenses of osteopaths and other physicians may be revoked by the state board of medical examiners. It was argued that the complaint was defective in that it did not set out or describe with sufficient certainty the advertisements charged as the unprofessional conduct on the part of the defendant. It might well be argued that this, in any event, would only entitle the defendant to have the complaint against him made more specific and certain or that he be furnished a bill of particulars before trial, and that, having proceeded to trial before the state board of medical examiners without insisting on this right, it was waived. However that may be, when the case was pending on appeal in the superior court, a stipulation was entered into between counsel on both sides that certain specified advertisements, copies thereof being made a part of the stipulation, which appeared on their face to have been published by the defendant in certain named Seattle and Tacoma newspapers, might be introduced in evidence on the trial in the superior court, subject only to objections as to their competency and materiality. This stipulation, the record made it apparent, served all the purposes of a bill of particulars, and advised the defendant of the specific charge against him as much as any language of the complaint, standing alone, could possibly have done. It seems quite clear to the supreme court that he cannot now complain of the insufficiency of the complaint, and that in no event can the complaint be said to be so defective as to be insufficient to support the judgment. Among the seven definitions of acts declared to constitute unprofessional conduct for which a practitioner's license may be revoked, found in said section 8397½, is the following: "Third. All advertising of medical business which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to public morals or safety." This court is constrained to adopt the view that this definition of unprofessional conduct is not void or unconstitutional because of its vagueness or uncertainty, in harmony with what the court regards as the weight of authority and better reason, in view of the fact that this is not a criminal statute, enacted with any purpose of imposing penalties as such. Much less can the fourth subdivision, with reference to advertising medicine or means for regulating or reestablishing the menses, be said to be unconstitutional. Nor had the defendant any constitutional right to a trial by jury in this case.

Court Going to Hospital to Take Testimony

(State vs. Tracy (N. Dak.), 158 N. W. R. 1069)

The Supreme Court of North Dakota affirms an order denying the defendant a new trial after he had been convicted of the crime of assault and battery with intent to commit rape, in a case in which the testimony of the complaining witness was taken at a hospital in which she was confined at the time of the trial on account of an operation for appendicitis, which had been performed on her four or five days prior thereto. The court holds that taking the testimony of a witness in a criminal action at a hospital in the county seat in which the trial is being conducted, to which the presiding judge, jurors, court officials, state's attorney, and the defendant and his attorney go for that purpose, against the defendant's objection, does not deprive the court of jurisdiction or nullify the judgment, and it cannot be said that any substantial right of the defendant has been affected, unless it is shown that the trial court abused its discretion to the prejudice of the defendant.

Social Medicine, Medical Economics and Miscellany

THE FRAMINGHAM EXPERIMENT

An Organized Effort at Community Control of Disease

What is the value of our accumulated knowledge on the prevention of disease when applied under the most favorable circumstances? To what extent can disease be prevented, in a modern industrial community, when all available knowledge and resources are utilized? Through the liberality of the Metropolitan Life Insurance Company, which contributed $100,000 for a community laboratory experiment, an effort is being made to determine, in a typical American community, whether it is possible to ascertain with some degree of definiteness just what social and economic factors are responsible for disease and what methods are most effective in securing an adjustment of social forces by which disease may be controlled and prevented. This problem has been studied elsewhere in a limited way. The conversion of a selected community into a laboratory for the study of public health problems in their broadest aspects and for the organization and coordination of all available forces for united effort in disease prevention constitute an experiment which is novel, interesting and capable of being of great value in the development of community public health methods.

The National Association for the Study and Prevention of Tuberculosis announced in its press bulletin in November that Framingham, Mass., had been selected as the town in which to make the community health demonstration for a period of three years. Framingham was selected because Massachusetts has a good department of health, because the town contained various types of industries and various races of people; because the town had a good local health organization, progressive city officials, good educational and relief organizations, good hospitals, and well trained physicians; because the town itself, both officially and through its individual citizens, was willing to cooperate and to meet its own obligations; because health conditions in the town were average and typical, and because Framingham itself desired to advance in health work. A committee made up of representatives of the National Association for the Study and Prevention of Tuberculosis, the Metropolitan Life Insurance Company, the U. S. Public Health Service, the Massachusetts State Department of Health, and tuberculosis associations in Massachusetts, New York, Connecticut and Pennsylvania was appointed to have charge of the work. Dr. Donald B. Armstrong, formerly connected with the work of the Association for Improving the Condition of the Poor of New York City, was selected as the director of the experiment. The plans made include the following items:

1. The establishment of an office, the appointment of a local committee, the introduction of the program to all the organizations and people in Framingham.
2. Complete care for known cases of tuberculosis.
3. The early discovery of unknown advanced cases.
4. A thorough knowledge of the whole town, including sanitary conditions, factory conditions, school conditions, commercial and office conditions and rural conditions.
5. Tuberculosis lectures and clinics by the country's most famous experts, for local physicians, emphasizing uniform and efficient work, and showing the way to the rest of the state and country for the use of the best methods of diagnosis and treatment.
6. The coordination of Framingham health activities, including the work of the demonstration committee, school health work, factory health work, the work of the board of health, infant health work and charitable relief.
7. The coordination and expansion of Framingham medical facilities, including laboratory, dispensary and hospital, with the establishment of necessary connections with outside medical agencies, such as the state and country sanatoriums, the Boston medical schools, etc.
8. An educational campaign carried on through general public channels, school and factory, etc., aimed at the detection and prevention of early cases of tuberculosis, the prevention of infection, and the creation of healthful conditions and thorough annual medical examinations for every one.
9. The thorough medical examination of all Framingham citizens who are willing to go to their physician or to the dispensary for this purpose.
10. Home care, with adequate nursing and medical facilities for tuberculosis cases. Hospital care, in state or county institutions, will be recommended and provided for in some way when necessary.

Discussing this program and the best methods of carrying it out, Dr. Armstrong said recently[1] that it was essential for the complete and successful use of available community agencies that mutually beneficial and cooperative relations be established with the health and medical representatives in Framingham. On the side of health and nursing, the problem presented no difficulty. The local health organization can meet the routine health and nursing needs. "But," says Dr. Armstrong, "in Framingham, as probably would be the case elsewhere, the problems of medical organization are most fundamental and at the same time most difficult. The success of many phases of the problem, including thorough medical examinations, the detection of early cases of disease, etc., depends on the sympathy and help of the members of the medical profession. Their criticism and approval of numerous steps must be had. Uniform diagnostic standards and methods for the examination and classification of disease are essential to the scientific value of the demonstration. . . . Medical work must be done through the practicing physician in such a way as not to interfere with normal medical procedure. . . . A local organized medical efficiency is necessary to meet these ends. . . . If the campaign to urge people to go to their doctors for thorough medical examinations is a success, here again the intelligent cooperation of the Framingham physicians will be needed."

What is to be expected of the town itself? Here again definite plans have been formulated. The following synopsis shows what Framingham is expected to do:

1. If the demonstration is to be a success, it must have the earnest cooperation of the Framingham physicians in the detection and reporting of tuberculosis cases, in the making of thorough medical examinations, etc. This will mean a considerable burden of work for the physicians, and for that reason will have to be paid for by the Framingham people themselves, sick or well, if possible, or by local charitable agencies and the demonstration committee's special fund for this purpose.
2. The demonstration must have the help and good will of Framingham town officials, private agencies, private citizens, factory owners, newspapers, etc.
3. The help of the antituberculosis society is essential, and all should be willing to follow completely the advice and treatment recommendations of their physicians.
4. Finally, Framingham should continue to meet its natural and normal town health obligations. These may be outlined as follows, and concerning them, assurances have been given the committee that most or all of them will be met either from the town funds or from funds to be provided by private organizations:
   (*a*) The maintenance of a health office with a full-time officer and public health laboratory.
   (*b*) A tuberculosis dispensary and full-time tuberculosis nurse.
   (*c*) Medical school inspection, a full-time school nurse, and, if possible, a full-time school physician.
   (*d*) An infant welfare clinic and at least a part-time infant welfare nurse.
   (*e*) A district visiting nurse, the expense to be met in part at least by the Visiting Nurse Association, Metropolitan Life Insurance Company, assisted by the nurses at the hospital.
   (*f*) The efficient coordination of charitable agencies.
   (*g*) Open-air rooms in the schools and possibly a dental clinic.
   (*h*) The cooperation of as many people as possible in making successful the campaign for thorough annual medical examinations.
   (*i*) Full cooperation in the use of the old school building now used by the department of health as an isolation pavilion, as a temporary place for certain types of cases, if necessary, pending the completion of the county's hospital, particularly for patients who cannot wisely be cared for at home, owing to the exposure to infection of infants and children; the expense to be met jointly by the demonstration committee and the hospital.
   (*j*) The cooperation with the committee in the use, if necessary, of another old school building to be used as a preventorium for children.
   (*k*) Willingness on the part of patients to follow advice and treatment of their physicians.

Finally, what results are to be expected from this impressive and carefully planned experiment in municipal disease prevention? As formulated by the committee, they are:

1. The discovery and adequate care of all cases of tuberculosis, the reduction of sickness and deaths to a minimum.
2. The general health and sanitary improvement of all of Framingham and its population, and the prevention of other diseases as well, resulting in a reduction in the general death rate from all causes.
3. The demonstration of the belief that disease prevention for any town is cheaper than disease, both to the town and to the sick person.
4. The making of Framingham the world's healthiest spot and hygienic Utopia.
5. The spending locally of $100,000 or more.

1. Armstrong, D. B.: Framingham Health and Tuberculosis Demonstration, Boston Med. and Surg. Jour., 1917, **176**, 206.

6. The transformation of Framingham into the healthiest and safest place to trade and the safest town from which to advertise manufactured products—a substantial asset.
7. Fame for Framingham—the eyes of the medical, health, scientific and popular worlds are on her.
8. The working out, at the end of the experiment, of the best health and disease preventive machinery for a town of Framingham's size.
9. The demonstration of the cheapest and most efficient method for the prevention of tuberculosis—a plan for other towns the world over to copy.
10. The answer to the questions: Are we spending our money wisely? What methods in disease prevention are worth while?
11. The successful demonstration of a worthy program for the conquest of tuberculosis and for the enthronement of health.

The Framingham experiment will be followed by those interested in disease prevention and the conservation of human life. While it may not be determinative in its results, as far as other communities are concerned, it will at least give an opportunity for the testing of many theories and the working out of exact methods for disease control. Whether or not all the expected results are realized, the three year demonstration cannot fail to be a stimulus to the people of Framingham in securing better living conditions which will be an example for other cities to follow.

Children's Code and Its Enforcement

A commission recommended by the State Committee for Social Legislation and a number of other agencies interested in child welfare, appointed by the governor of Missouri to complete a code of laws for the welfare of children, has recently made its report. The report covers the subjects of statistics and social conditions, public administration, delinquents, defectives, destitute and neglected children, child labor, health and recreation, and education. The commission recommends: (1) the establishment of a board of public welfare in every county; (2) the creation of a children's court in every county as part of the circuit court, with provisions for a referee for the immediate hearing of children's cases in the absence of the judge of the circuit court; (3) statewide provisions for mothers' pensions; (4) a complete revolution in the status of illegitimate children, giving them practically the right of legitimate children; (5) state supervision of all private agencies caring for children; (6) the placing of all institutions for defectives and delinquents under the state department of education; (7) the providing of special classes in the schools for all types of defective children; (8) requiring children to complete the sixth grade in school unless the child has reached the age of 16.

Society Proceedings

COMING MEETINGS

American Medical Association, New York, June 4-8.

Alabama State Medical Association, Montgomery, April 17-20.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Urological Association, Chicago, April 2-4.
Arizona Medical Association, Douglas, April 17-18.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
California State Medical Society, San Diego, April 17-19.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Carolina Medical Association, Spartanburg, April 17-19.
Tennessee State Medical Association, Nashville, April 3-5.
Texas State Medical Association, Dallas, May 8-10.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Feb. 28, 1917

The President, Dr. Henry D. Jump, in the Chair

SYMPOSIUM ON BACKACHE

Backache as Viewed by the Internist

Dr. Joseph Sailer: There are few diseases in which backache may not occur. The first step in diagnosis is a careful history and a description of the pain. Exceedingly important is the question of the association of pain in other parts of the body. The patient will usually understate rather than overstate the duration of pain. The patient should remove all clothing, and often the presence of an eruption will determine the nature of the condition. This is particularly true of herpes zoster. Next in importance to the inspection of the back is the use of the Roentgen ray by which it is possible to detect disease of the spinal column, and also disease in situations other than the back, yet causing backache. In the occipital region, pain may be caused by suboccipital neuritis, brain tumor, especially cerebellar; meningitis, disease of the sphenopalatine ganglion, eyestrain, or ear disease. Frequently pain in the occipital region is associated with infectious disease. The pain which occurs in the shoulder girdle is sometimes very severe, and is due to a great variety of causes: disease of the cervical or upper dorsal spine, tumor of the spinal cord, aortic disease, brain tumor or meningitis. Pain in the shoulders is sometimes unilateral. It may occur in either shoulder in brachial neuritis, in intercostal neuritis, in diaphragmatic pleurisy, in disease of the lungs and pleura, particularly in the neighborhood of the apex, and is common in subclavian aneurysm, in bursitis and in osteomyelitis of the shoulder. On the right side pain occurs in the shoulder in disease of the gallbladder and sometimes in disease of the liver; on the left side in pylorospasm, ulcer of the stomach, aneurysm of the descending aorta and in diaphragmatic hernia. Among the most important causes of pain in the dorsal region of the spinal cord are secondary malignant tumors of the spine, osteosarcoma and esophageal disease. In the lumbar region, pain may be due to abdominal aneurysm, lumbar abscess (psoas), anemia, pregnancy, retroperitoneal sarcoma, bladder and rectal disease, uterine and ovarian disease and to constipation. Pain is also present in postoperative conditions sometimes due to faulty position on the table.

Backache from an Orthopedic Standpoint

Dr. Gwilym G. Davis: Of orthopedic conditions causing backache all may be included under "traumatism": actual blows, muscular strains, sprains of the joints, and strains due to static changes involving disturbances of the body balance due to weakness, etc., of the lower extremities. While actual blows seldom cause backache, there must be borne in mind the possibility of such injury being the starting point of tuberculosis. Roentgen-ray examination is here indicated. In obscure cases the patient should be examined to ascertain whether there are serious deformities of the limbs and whether the feet are properly shod. Persons suffering from habitual constipation are especially liable to backache. Among other sources of backache may be mentioned disease of the kidneys and uterus and malignant disease of the spine. No matter what the cause of the backache, a certain amount of support is usually of service, but curative only when the cause is local. The general condition must receive attention. Massage and exercises are to be avoided in ostearthritic conditions. People who are generally miserable and run down are apt to attribute their troubles to the back; in such patients hygienic in addition to supporting measures are required. There is scarcely a single measure to which a physician can resort in these painful backs which will be of more practical service than some form of support.

Gynecologic Aspects of Backache

Dr. Catharine Macfarlane: In 16 per cent. of 983 gynecologic cases backache was mentioned as a prominent symptom. The pelvic findings of these 159 cases comprised chiefly lacerations, retroversions, prolapse and inflammatory conditions, such as adherent appendages and endocervicitis. The incidence of marked nervousness in these 159 patients with

backache was about 9.5 per cent., or about equal to the incidence of adherent appendages, and half as frequent as that of prolapsus uteri. It would seem that the neurasthenic state predisposes to backache of pelvic origin by lowering the resistance of the central nervous system. The fact that the backache in many of the reported cases was permanently relieved by appropriate gynecologic treatment compelled belief that these backaches were caused by the pelvic condition. The mode of production of backache is explained by the theory of referred pain. The diagnostic features of pelvic backache are that the pain is sacral or lumbosacral, is apt to be aggravated by the menstrual period, and is usually associated with objective symptoms of pelvic disease. Neurotic patients with purely subjective symptoms must be handled with great care, and caution exercised to avoid unduly emphasizing some trifling gynecologic condition which might merely coexist.

Backache as Seen by the Neurologist

DR. M. H. BOCHROCH: It is impossible to make a definite or clear cut diagnosis of a spinal affection, either of functional or organic disease, from pains in the back. Neither the location, character nor intensity of the pains will justify it. They are merely the sign posts which point the way for deeper investigation. In conjunction with pains in the back there must be a searching history of the case in all its phases, and a separation and intelligent interpretation of the objective from the subjective symptoms.

DISCUSSION ON BACKACHE

DR. HARRY HUDSON: Constipation as a cause of backache deserves more than passing mention. In the Samaritan Hospital we have frequently seen cases of supposed back trouble in which there is packing of the colon. Following purging, the Roentgen ray has shown that the persistence of the back pain was due to the fact that the colon had not been evacuated. Spinal curvatures, and strains of the static type are frequently overlooked as causes of pain in the occipital region. In my rather limited experience I do not think I have seen more than one or two cases of painful back due to Bright's disease. It is interesting to note that in the first examination of patients we may find the muscles on one side rigid, and on the other relaxed, and on subsequent examinations, possibly both sides rigid, or the muscular tension transferred to another portion of the back, although the pain remains in the same position. Certain conditions of muscular strain cause painful backs which are not yet explained.

DR. J. T. RUGH: In myositis as a cause of pain in the back the hypodermic injection of hot salt solution, particularly into the body of the muscles, gives remarkable relief. In men in whom backache is relieved after a bowel movement, examination should be made of the seminal vesicles and prostate gland for infection. The Roentgen ray has shown a congenital malformation of the fifth lumbar vertebra in cases of backache occurring among laborers forced to flex the spine in their work. In fact, roentgenologists assert that it is unusual to find a normal fifth lumbar vertebra in these cases, and removal of the process of the fifth lumbar vertebra is being done by orthopedic surgeons with remarkable results in the cure of these cases.

DR. WILLIAM R. NICHOLSON: The reference to lack of pain in retroversions of the uterus would, I think, be better stated by saying that in nulliparous women without adnexal disease, immovable retrodisplacement caused pain only in rare instances. In multiparous women, pain is present under these conditions.

DR. A. BRUCE GILL: One is apt to be confused by the multiplicity of conditions that may cause pain in the back. They may be divided into: (1) diseases of the spinal column; (2) referred pain, and (3) mechanical causes. The mechanical causes are most often operative. Few people grow to adult life with perfect backs, and the spinal column should be examined from the mechanical point of view. Acute sprain of the back involving only the muscles is relieved by massage; the deep injuries are made worse, which is an important diagnostic feature. In the early treatment of backache, supportive measures may be advisable, with the subsequent employment of exercise, manipulations and gymnastics.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

March, XV, No. 3

1 *Relation of Blood Supply to Longitudinal Growth of Bone. S. L. Haas, San Francisco.—p. 157. To be concluded.
2 Scoliosis. E. G. Abbott, Portland, Me.—p. 172.
3 Analysis of Seventy-Five Cases of Tuberculosis of Spine in Adult. M. H. Rogers, Boston and T. M. Foley, Washington, D. C. —p. 208.
4 *Isolated Disease of Scaphoid Bone of Foot (Köhler's Disease); Report of Case. W. B. Hetzel, Pittsburgh.—p. 214.

1. Blood Supply and Bone Growth.—In order better to appreciate the effects of the various operative procedures and to emphasize the importance of the blood supply to bone, a detailed description and diagram of the direct blood supply to the metacarpal and metatarsal bones, as determined from the dissection of several injected specimens of the dog's foot, are given by Haas. In none of the five experiments, varying in length from twelve to fifty-nine days, is there any disturbance in growth following an incision down to the metacarpal or metatarsal bones. In only one of nine experiments was there any hindrance in the growth of the bone, when the incision extended down to the bones, with the separation of the overlying tissue. In a series of eleven experiments there was a very slight disturbance in growth after the ligation of the vessels on the dorsal surface of the foot. Cutting tissues from about the entire epiphyseal end of the metacarpal or metatarsal bone showed in six of the seven experiments that there is an appreciable loss of growth in the bone. There is not a complete cessation of growth, as a certain amount of blood enters from the diaphyseal end of the bone. In some instances there were gross changes visible in the region of the epiphyseal cartilage line. There was a greater disturbance in growth following the separation of the tissues from about the distal two-thirds than when only the tissues about the epiphysis are separated. In some of the experiments there was a complete cessation of growth. (To be concluded.)

4. Köhler's Disease.—No history of any injury could be elicited in Hetzel's case. Of the nine other cases reported, trauma was absent in four, and in two others was questionable or very slight. The von Pirquet reaction was negative, nor was there evidence of the disease in any organs. The Wassermann test was negative. No bacteriologic or microscopic studies have been possible because no operations have been performed, the condition being cured spontaneously. The treatment is rest and support.

American Journal of Physiology, Baltimore

March, XLII, No. 4

5 Physiology of Atrioventricular Connection in Turtle. Irritability and Rhythm Formation. H. Laurens, New Haven, Conn.—p. 513.
6 *Bile Pigment Metabolism. Bile Pigment Output Influenced by Eck Fistula. G. H. Whipple and C. W. Hooper, San Francisco. —p. 544.
7 *Origin of Proteolytic Ferments. Character of Certain Ferments. L. H. Sloan, Chicago.—p. 558.
8 *Influence of Partial Thyroidectomy in Pigs. C. C. Palmer, St. Paul, Minn.—p. 572.

6. Eck Fistula and Bile Pigment Output.—An Eck fistula, Whipple and Hooper show, allows the portal blood to pass directly into the vena cava and excludes it from the liver. The Eck fistula liver is atrophic with central fatty degeneration, and shows evidence of subnormal functional capacity. The Eck fistula liver secretes much less bile pigment than the normal liver—one-third to three-fourths of normal or even less. Splenectomy added to the combined bile and Eck fistula does not essentially modify the result. Simple bile fistula and the combined bile and Eck fistula dogs show the same histologic picture in the hematopoietic system. This means that bile pigment formation is in part dependent on liver function—in other words, not solely dependent on red cell disintegration. It is at least possible that the production

of other body pigments (that is, hemoglobin) may depend in part on the constructive capacity of the liver.

7. **Origin of Proteolytic Ferments of Blood.**—According to Sloan, normal blood serum contains a weak proteolytic ferment which carries digestion to the amino-acid stage. The concentration of this ferment is not constant. There is an increased proteolytic ferment action of serum during pregnancy as shown by the dialysis method of Abderhalden. This cannot be detected by the Van Slyke method. The injection of placental suspension does not give rise to an increased production or mobilization of ferments when tested by the dialysis method or the Van Slyke method. The injection of the split products of pepsin-trypsin digestion of human placenta gives rise to an increase in the ferments. This increase can be shown by the dialysis method but not by means of the Van Slyke method. The theory underlying the Abderhalden reaction as advanced by Abderhalden does not explain the increase in ferments found during pregnancy. The basis of the theory would seem to be the entrance of split products of placental hydrolysis rather than of chorionic villi and cells. The Van Slyke method is not applicable to determinations of the above character in which a nonsoluble, moist, complex, protein substance is incubated with serum in a test tube but without dialysis.

8. **Partial Thyroidectomy in Pigs.**—The work reported on by Palmer was undertaken with the view of determining if cretinism can be produced. He found that extirpation of the main thyroid in young pigs does not induce cretinism, at least within a period of nearly one year. There is a slight retardation in growth, but the pigs operated on act similar to the controls, except that they show a marked lowered resistance to infection. Postmortem examination of the thyroidectomized pigs revealed a marked hypertrophy of the accessory thyroid tissue. The main thyroid plays an important part in the normal body resistance to infection and when this structure is removed the accessory thyroids cannot completely compensate. In pigs a degree of hypothyroidism, not sufficient to lead to marked changes in physical appearance of the animal, lowers the resistance to infection to quite a degree, and impairs the functions of reproduction.

Boston Medical and Surgical Journal

March 8, CLXXVI, No. 10

9 *Results of Treatments for Fractures of Carpal Bones. H. W. Marshall, Boston.—p. 333.
10 Inebriety and How To Control It. I. H. Neff, Norfolk.—p. 337.
11 Intrathoracic Goiter. F. H. Lahey, Boston.—p. 341.
12 Suppurative Labyrinthitis; Critical Review of Its Diagnosis and Treatment. A. B. Duel, New York.—p. 345.
13 Paravertebral Anesthesia; Report of Fifty Cases. F. C. W. Konrad, Boston.—p. 351.
14 *Large Ovarian Tumor. F. A. Pemberton.—p. 354.
15 Case of Aspermia. Successfully Treated with Dried Suprarenal Cortex. S. W. Little, Rochester, N. Y.—p. 355.
16 Case of Congenital Dislocation of Shoulder Joint. F. E. Peckham, Providence, R. I.—p. 355.
17 Treatment of Pain and Distress in Digestive Disorders. A. E. Austin, Boston.—p. 357.

March 15, No. 11

18 Study of Problem of So-Called Defective Delinquent and What Has Been Done in Massachusetts. L. V. Briggs, Boston.—p. 371.
19 What Massachusetts Is Doing for Syphilitic at State Infirmary at Tewksbury. O. M. Lewis, Boston.—p. 380.
20 *Vasomotor Unrest in Insane. C. J. Enebuske, Säter, Sweden.—p. 385.
21 Pulmonary Syphilis; Report of Probable Case. C. Phipps, Boston. —p. 390.

9. **Treatments for Fractures of Carpal Bones.**—Eighty-one cases are analyzed by Marshall. Among these there were sixty-four cases of simple fracture of the scaphoid, three cases of fracture of scaphoid with fracture of styloid process of radius, and five cases of fracture of scaphoid with dislocation of semilunar. The results from treatment of these cases indicate that early fractures of scaphoid bones without displacement of fragments should be protected for a short time, one to four weeks, then passive and active movements gradually resumed until painful symptoms subside. Such early fractures resulting from slight injuries should not be operated on, because many wrists regain good function with very little medical care. Old ununited fractures of scaphoid bones, without displacement of fragments, however, should be operated on if soreness persists for a long period, or recurs frequently enough to cause serious disability. The length of time which should be allowed to elapse between injury and time of operation differs widely according to different occupations, different degrees of initial injuries, and varying constitutional conditions of patients. Fractures with accompanying irreducible dislocations of semilunar bones should be operated on soon. Perfect restorations of wrist motions after operations appear to be rare, but fairly serviceable wrists ultimately should be expected.

14. **Large Ovarian Tumor.**—Pemberton cites a case in which the tumor and its contents weighed 72 pounds. Pathologically it was a unilocular pseudomucinous cyst adenoma lined by a single layer of high cylindric cells and showing no papillary hypertrophies growing from the epithelium. Only three cases of larger cysts which have been successfully removed are recorded in the literature.

20. **Vasomotor Unrest in Insane.**—These studies are based on 20,000 measurements of the tension of the radial pulse in 250 cases of various forms of insanity. According to Enebuske vasomotor unrest is a common occurrence in the insane, but his observations regarding the vasomotor unrest in the insane do not furnish reasons enough to call for any declaration of opinion regarding the causes and origin of insanity. Characteristic of the manodepressive group is vasomotor unrest at hypertension level, continuous within certain periods of time. That is to say, that the blood pressure in radialis is subject to frequent alterations between higher and lower values about a middle value which always is higher than 150 mm. Hg. This alterability ceases after a period of time, briefer or more prolonged, as the case may be. When the vasomotor unrest ceases, vasomotor tranquillity sets in. Whenever this occurs, the disease has either run its course or is altered. The tension of the radial pulse in the praecox group is characterized by continuous vasomotor unrest at hypertension, hypotension, or middle level. The blood pressure in praecox presents by far more numerous variations than in the manodepressive group. In the manodepressive group, the psychic symptoms having run their course, when remission has entered or health is restored, the vasomotor unrest subsides spontaneously and vasomotor tranquillity at normal blood pressure manifests itself. In the praecox group, on the contrary, the vasomotor unrest is continuous without time limit through periods of remission with vasomotor tranquillity (exception for periodical praecox). In all these forms of insanity is found vasomotor unrest at different blood pressure levels during the acute and subacute stages. During periods of a relatively more tranquil vasomotor condition, the receptivity and responsiveness of the insane to psychotherapy and pedagogic influence (working therapy, etc.) is markedly increased in a majority of the cases observed.

California State Journal of Medicine, San Francisco

March, XV, No. 3

22 Animal Experimentation and Medical Progress. G. H. Whipple, San Francisco.—p. 68.
23 *Report of Fifty Cases of Tuberculosis of Kidney and Bladder Clinically Cured without Operation. F. S. Dillingham, Los Angeles.—p. 70.
24 Limitations of Roentgenology in Tumors of Kidney. A. Soiland, Los Angeles.—p. 73.
25 Treatment of Syphilis. G. MacGowan, Los Angeles.—p. 73.
26 Stenosis of Duodenum; Report of Cases. P. S. Campiche, San Francisco.—p. 76.

23. **Tuberculosis of Kidney and Bladder Clinically Cured without Operation.**—This report by Dillingham is made of patients who have presented themselves with both sides infected or who absolutely refused to be operated. Dillingham says that with the best hygienic care, compatible with the patients' occupations, cautioning them not to overdo physically, using extreme gentleness in the care of the cystitis and with small doses of tuberculin regularly given and carefully increased, not necessarily to the highest point of toleration for the individual patient, but to the point of greatest clinical gain, a great many who refuse to be operated on, or who come with both sides infected, may be relieved, and possibly cured,

and certainly may be made more comfortable. Of these fifty patients, 90 per cent. have been able to keep at their work during the course of treatment or were able to return within a very few weeks. Two patients developed tuberculous epididymitis in the course of their treatment. Great care was taken not to get a reaction with the tuberculin. In the average case 1/15,000 mg. was given twice a week and so gradually increased that there was never a local or general reaction. In those cases, complicated by lung infections, this initial dose was reduced to 1/150,000 mg. As a guide for increasing the dose in the majority of the cases, Dillingham relied on the following: a feeling of well-being and less of the tired feeling, increase in weight and appetite, improvement as to frequency either day or night, or both. Along with careful diet and hygienic measures, Dillingham is a firm believer in the use of silver nitrate for bladder irrigations, beginning with a pint of a 1/50,000 solution in distilled water, the rule being not to cause irritation either from the strength of the silver or the rapidity of its injection. In increasing the strength of the silver, which is done as rapidly as possible, the bladder should never burn.

Cleveland Medical Journal

January, XVI, No. 1

27 Interpretation of Stereoroentgenograms of Mastoid. J. M. Ingersoll, Cleveland.—p. 1.
28 Psychoneurosis—Emotionalism as Genetic Factor. H. H. Drysdale, Cleveland.—p. 5.
29 Conservative Surgery in Splenomegaly; Report of Cases. A. Peskind, Cleveland.—p. 16.
30 Pneumoliths; Report of Cases. L. E. Brown, Akron.—p. 21.
31 Importance of Enlarged Rectal Valves in Causing Autotoxemia. W. M. Gregory, Berea.—p. 26.

Florida Medical Association Journal, Jacksonville

February, III, No. 8

32 Valvular Lesions in Aged. G. E. Henson, Jacksonville.—p. 225.
33 Senile Bronchitis. H. L. Merryday, Daytona.—p. 229.
34 Effects of Senility on Kidney. L. B. Bouchelle, New Smyrna.—p. 229.
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39 "Indigestion." G. M. Niles, Atlanta, Ga.—p. 234.
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42 *Hypersensitiveness to Tuberculin as Determined by Intracutaneous Injection of Different Dosages. M. S. Cohen, Philadelphia.—p. 233.
43 Virulence and Toxin Formation in B. Diphtheriae. W. E. Cary, Chicago.—p. 244.
44 *Germicidal Action and Specific Bacteriotropism of Quinin and Urea Hydrochlorid, Ethylhydrocuprein and Other Cinchona Derivatives on Pneumococci in Vitro. S. S. Cohen, J. A. Kolmer and G. D. Heist, Philadelphia.—p. 272.
45 Various Methods of Determining Bactericidal Action of Substances in Vitro and Their Relation to Chemotherapy of Bacterial Infections. J. A. Kolmer, S. S. Cohen and G. D. Heist, Philadelphia.—p. 293.
46 *Protective and Curative Value of Quinin and Urea Hydrochlorid, Ethylhydrocuprein, and Other Cinchona Derivatives in Experimental Pneumococcus Infections. S. S. Cohen, J. A. Kolmer and G. D. Heist, Philadelphia.—p. 313.
47 *Influence of Quinin and Urea Hydrochlorid, Ethylhydrocuprein, and Other Cinchona Derivatives on Leukocytosis and on Phagocytosis of Pneumococci in Vitro. J. A. Kolmer, S. S. Cohen and E. Steinfield, Philadelphia.—p. 333.
48 *Allergic Skin Reactions in Pneumonia to Type Strains of Pneumococci. E. Steinfield and J. A. Kolmer, Philadelphia.—p. 344.

42. **Hypersensitiveness to Tuberculin.**—This phenomenon was studied by Cohen in 28 patients. The character of the response varied. An areola alone was noted in 12 patients and 17 tests; induration alone in 4 patients and 5 tests; a papule alone in 4 patients and 5 tests; areola and induration together in 14 patients and 34 tests; areola and papule in 19 patients and 37 tests; induration and papule in 2 patients and 3 tests; and areola, induration, and papule in 17 patients and 48 tests. Only when induration or a papule was present was the response regarded as a true reaction. The patients varied greatly in their degree of hypersensitiveness, one patient reacting to one ten-millionth of a milligram, and another only to ten milligrams. Six patients reacted to one ten-millionth of a milligram, 2 patients to one millionth of a milligram, 7 to one one-hundred-thousandth of a milligram, 2 to one ten-thousandth of a milligram, 1 to one thousandth of a milligram, 1 to one hundredth of a milligram, 3 to one tenth of a milligram, 2 to one milligram, and 1 to ten milligrams. Great irregularity was shown in the reactions. Only 12 of the 28 reacted to all the doses of tuberculin above the one that caused the minimal reaction. Fifteen patients were again tested from two and one-fourth to five and one-half months after the degree of hypersensitiveness had been first determined. Five reacted in about the same manner as before. Four reacted to 10 times the previous minimal reaction dose, 3 to 100 times it, 1 to more than 100 times it, and 1 to 1,000 times it, while 1 reacted to one hundredth of it. Tuberculin hypersensitiveness seems to correspond with tuberculin tolerance. The appropriate therapeutic dose as determined by intracutaneous injection is approximated clinically by increasing the dose until a favorable systemic reaction is produced, then maintaining the dose producing this until it no longer produces such reaction, and then again increasing it. The therapeutic value of tuberculin, properly administered, can be seen in the accompanying decrease in hypersensitiveness.

44. **Action of Quinin, etc., on Pneumococci.**—This report is confined to certain preliminary studies concerning the germicidal action of quinin, its compounds, and its congeners, especially their action on pneumococci. Besides ethylhydrocuprein and methylhydrocuprein and their respective hydrochlorids, the chemicals chosen for study were the alkaloid quinin and its monobasic and dibasic salts with hydrochloric, hydrobromic, and sulphuric acids; its salicylate, lactate, arsenate, valerianate, and tannate; and the double salt of hydrochloric acid with quinin and urea. Types I, II and III of the pneumococcus were selected as the micro-organisms for investigation. With the centrifugation method the various salts of quinin proved bactericidal for all types in dilution of about 1:100 (least active 1:80; most active 1:200). Methylhydrocuprein hydrochlorid had about the same germicidal value as the quinin compounds. The compound of quinin and urea hydrochlorid was slightly more active than the other quinin compounds against Type II (1:200) and Type III (1:150). Ethylhydrocuprein hydrochlorid, however, proved 3.5 to 8 times as active as the most active of the quinin salts (bactericidal in dilution of 1:700 and 1:800). Cross bactericidal tests—employing, on the one hand, quinin and ethylhydrocuprein, with cultures of *B. typhosus* and of a staphylococcus, and on the other hand, arsenobenzol, phenol, mercuric chlorid, sodium salicylate and other substances, with cultures of pneumococci, show that the cinchona derivatives possess a high degree of specific pneumococcidal activity. The pneumococcidal activity of ethylhydrocuprein hydrochlorid was reduced to one-fifth or sometimes one-tenth part in a menstruum of serum, as compared with that shown in normal salt solution. The activity of the majority of the quinin salts tested was, relatively, but slightly reduced in serum. The activity of phenol in serum was reduced to one-half, and that of mercuric chlorid to one-tenth, of their respective values in salt solution.

46. **Chemotherapy of Pneumococcus Infections.**—Although the authors' study shows a real protective and curative value in ethylhydrocuprein in experimental pneumococcus infections, their results demonstrate a somewhat less marked antipneumococcus potency on the part of this drug than has been previously reported. Other cinchona derivatives are shown to possess also a certain degree of protective power in experimental infections. In their opinion ethylhydrocuprein stands today in a position somewhat similar to that of atoxyl in the treatment of experimental trypanosomiasis. The authors emphasize further that in so far as the facts here reported may be considered to bear on the value of quinin compounds in the treatment of pneumonias in man, that the use of these agents as advocated by one of them forms but one element in a therapeutic plan, and that, at least until some more potent pneumococcide in vitro than even ethylhydrocuprein is found,

it is the plan as a whole, and not any single feature only, that is offered for the consideration of practicing physicians.

47. **Action of Quinin, Etc., on Phagocytosis of Pneumococci in Vitro.**—The experiments here reported indicate that probably a part of the curative effect of quinin and urea hydrochlorid, ethylhydrocuprein, and other cinchonics in pneumococcus infections is to be ascribed to their influence on phagocytosis.

48. **Skin Reactions in Pneumonia.**—Allergic reactions were observed by Steinfield and Kolmer in 30 per cent. of a series of cases of lobar pneumonia following the intradermal injection of washed and heat-killed pneumococci. True reactions were not observed among normal persons or those suffering with various chronic diseases, and the presence of pneumococci in the upper air passages during health apparently does not sensitize in so far as this condition is detectable by skin tests. All reactions occurred after the crisis or after the infection had been present over a prolonged period. There was no constant relation between reactions to the protein of various types of pneumococci and the types found in the sputum. It is probable that the allergic reactions to pneumococcus protein are of a more general character than the agglutination reactions.

Laryngoscope, St. Louis

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49 Surgery of Temporomandibular Articulation. L. W. Dean and W. F. Boiler, Iowa City, Iowa.—p. 65.
50 Rational Treatment of Stuttering. M. K. Scripture and E. Jackson, New York.—p. 74.
51 Repair of Tympanic Membrane in Perforations of Long Standing. A. M. Dunlap, Shanghai, China.—p. 81.
52 Cerebral Complication of Acute Mastoiditis with Very Sudden Unusual Symptoms. W. T. Patton, New Orleans.—p. 86.
53 Safety-Pin in Larynx; Perilaryngeal Abscess Treated for Diphtheria. H. L. Lynah, New York.—p. 93.
54 Case of Hemiplegia Occurring Immediately After Tonsillectomy Under General Anesthesia. W. A. Scruton, New York.—p. 96.
55 Edema of Glottis Following Tonsillectomy. E. L. Myers, St. Louis.—p. 98.
56 Curious Case of Diphtheric Membrane in Lung Simulating Foreign Body, Diagnosed and Removed by Bronchoscope. R. H. Skillern, Philadelphia.—p. 100.
57 New Instrument for Attachment to Suction Apparatus to Maintain Dry Field in Tonsillectomy Under General Anesthesia and to Lessen Occurrence of Postoperative Pneumonia. S. Israel, Houston, Texas.—p. 102.

Medical Record, New York

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58 Blood Pressure Test and Its Present Status in Life Insurance Examinations. F. A. Faught, Philadelphia.—p. 399.
59 Massage in Raynaud's Disease (Dry Gangrene). D. Graham, Boston.—p. 402.
60 Subdeltoid Bursitis with Lime Salt Deposit. M. K. Smith, New York.—p. 406.
61 Calcium Salts for Acidity and Associated Disorders. J. Aulde, Philadelphia.—p. 408.
62 Vaccine Treatment of Coryza. H. L. Fifield, Syracuse.—p. 409.
63 Clinical Studies in Hyperthyroidism. L. F. Watson, Chicago.—p. 411.
64 Dont's in Hemorrhage and Blood Diseases. M. Chideckel, Baltimore.—p. 412.

Missouri State Medical Association Journal, St. Louis

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65 *Recurrent Transient Complete Heart Block. S. Simon and G. C. Robinson, St. Louis.—p. 97.
66 *Treatment of Carcinoma of Mouth. V. P. Blair, St. Louis.—p. 101.
67 Gangrene of Extremities; Report of Cases. M. F. Engman, St. Louis.—p. 105.
68 Value of Early Treatment of Mental Disorders. F. M. Barnes, Jr., St. Louis.—p. 108.
69 *Trichiniasis; Report of Three Sporadic Cases. L. H. Hempelmann, St. Louis.—p. 111.
70 Cooperation and Loyalty of Medical Men in Local Communities. M. P. Overholser, Harrisonville.—p. 113.
71 Factors of Safety in Surgery. W. Bartlett, St. Louis.—p. 116.

65. **Transient Complete Heart Block.**—The case reported by Simon and Robinson is an example of functional recovery of the auriculoventricular conduction between attacks of complete heart block. The electrocardiograms showed complete heart block only on one occasion, but the clinical observations and history make it clear that such a condition occurred repeatedly, while records obtained between periods of block revealed but slight depression of the auriculoventricular conduction. Syncopal attacks occurred frequently over a period of two years. Between attacks the cardiac mechanism was practically normal. The authors are of the opinion that the patient probably had an organic lesion affecting the conducting system, not only in junctional tissues, but also in the ventricles. That this damage never led to partial block, but caused apparently a sudden change from the normal beat to complete block is of interest.

66. **Treatment of Carcinoma of Mouth.**—Fifty cases are analyzed by Blair. In thirty-two cases, which included the medium grade, the far advanced and the inoperable, radical cures were done or attempted by one or several operations; five being the most done on one patient before all tissues likely to be infected were removed and repair effected. In all, fifty-three operations were done on these thirty-two patients. Seven died while in the hospital. Of the fifty cases analyzed, four were far advanced and three were inoperable within two months after they had attracted the patient's attention. The majority of them could and should have been recognized at a time when the operative death rate should be almost nil and the cures at least around 70 per cent. Blair emphasizes the fact that carcinoma of the inside of the mouth, now generally regarded as one of the most hopeless forms of disease, is so chiefly on account of largely avoidable procrastination and partly on account of pernicious treatment. When the public is taught the advisability of consulting a physician or a dentist in regard to every localized thickening, discoloration, crack or ulceration that appears within the mouth and which persists for more than a few days; when the physician or dentist consulted will bend his efforts toward making an accurate diagnosis rather than dismissing it as inconsequential or tentatively using various irritants in an attempt to cure it; when patients of cancer age with leukoplakia or other chronic epithelial change are warned of the danger of cancerous degeneration and of the frequently insidious nature of the onset of the change; when surgeons operating on mouth carcinoma will make sufficiently wide local excisions and extensive painstaking regional lymphatic dissections, not curtailing the latter because the cancer is early, but rather making the dissection thorough in the early cases on account of the greater chance of curing them, then, Blair says, will the results of operation for cancer of the inside of the mouth compare favorably with the results obtained in other regions.

69. **Eosinophilia in Trichiniasis.**—The maximum eosinophilia in the three cases reported by Hempelmann, was 46, 40 and 30.4 per cent., respectively, and in like order the lowest polynuclear count was 37.8, 32 and 51.2 per cent., respectively. Mast cells were present in the first two cases, 0.3 and 4 per cent., respectively. Hempelmann advises that trichiniasis must be considered when confronted by an obscure febrile disease. The fact that two of these three patients first consulted oculists under the impression that there was something wrong with the eyes shows how necessary it is for oculists particularly to be familiar with the picture of this disease.

New Jersey Medical Society Journal, Orange

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72 Cancer. E. Staehlin, Newark.—p. 95.
73 Preparation for Medical Practice. L. Emerson, Orange.—p. 99.
74 Ethical Practice; Its Scope and Its Limitations. G. E. Harbert, Beverly.—p. 101.
75 Some Lessons of 1916 Mobilization. S. A. Cosgrove, Jersey City.—p. 104.
76 Unpleasant Postmobilization Meditations. H. B. Orton, Newark.—p. 108.
77 Fatal Case of Bichlorid Poisoning from Vaginal Absorption. W. P. Conaway, Atlantic City.—p. 110.
78 Acute Lymphatic Leukemia. Developing Forty-Eight Hours After Minor Surgical Procedure. F. H. Glazebrook, Morristown.—p. 11.

New York Medical Journal

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79 Oral Sepsis. J. M. Anders, Philadelphia.—p. 433.
80 Medical Notes of Early New England. E. E. Cornwall, Brooklyn.—p. 435.
81 Kidney in Pregnancy. W. E. Parke, Philadelphia.—p. 440.
82 Gastric Onset of Pulmonary Tuberculosis. A. Bassler, New York.—p. 443.

83 Wassermann Paradoxus. D. M. Kaplan, New York.—p. 444.
84 Mental Factors in Etiology of Psychoses. C. Ricksher, Kankakee, Ill.—p. 444.
85 Typhlitis or Chronic Appendicitis. L. H. Levy, New Haven, Conn.—p. 449.
86 Sane and Rational Method in Treatment of Acute Gonorrhea. H. J. Millstone, South Chicago.—p. 451.
87 Use of Electrochemical Iodin in Urethral Infections. G. Greenberg, New York.—p. 453.

Pennsylvania Medical Journal, Athens

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88 Early Care of Suppurative Conditions of Middle Ear and Mastoid. N. S. Weinberger, Sayre.—p. 321.
89 *Treatment of Deformed Union and Nonunion of Fractures. J. B. Roberts, Philadelphia.—p. 324.
90 *Treatment of Compound Fractures. J. M. Wainwright, Scranton. —p. 328.
91 *Criminal Epileptic with Consideration of Epilepsy as Medicolegal Problem. N. S. Yawger, Philadelphia.—p. 332.
92 Ringworm of Scalp Cured with Roentgen-Rays; Report of Eighty-Three Cases. F. C. Knowles and J. B. Ludy, Philadelphia.—p. 336.
93 Duty of Medical Profession in Problem of Cripple. J. T. Rugh, Philadelphia.—p. 339.
94 *Types of Pneumococci in Infants and Children. A. G. Mitchell, Philadelphia.—p. 343.
95 *Specific Treatment of Acute Lobar Pneumonia. R. I. Cole, New York.—p. 345.
96 *Treatment of Croupous Pneumonia by Other Than Specific Methods. M. H. Fussell, Philadelphia.—p. 351.
97 *Acidosis. J. H. Austin, Philadelphia.—p. 356.
98 *Id.; Report of Cases. C. L. Palmer, Pittsburgh.—p. 359.
99 Relative Infrequency of Drug Habit Among Middle and Upper Classes. Treatment and Final Results. F. X. Dercum, Philadelphia.—p. 362.

89. Abstracted in THE JOURNAL, Nov. 4, 1916, p. 1395.

90, 94 and 95. Abstracted in THE JOURNAL, Nov. 11, 1916, p. 1471.

91. Abstracted in THE JOURNAL, Oct. 14, 1916, p. 1179.

96. **Treatment of Croupous Pneumonia.**—The six essentials of treatment which, Fussell says, are applicable to practically every case are: early recognition of the case; absolute rest, mental as well as physical; abundance of fresh air, pure, unheated, unbreathed air, admitted into the room through wide open windows; proper amount of good nourishing food; constant watchfulness by a good trained nurse; administration of proper drugs at the proper times. Fussell points out that while the temperature ranges between 103 and 105 F. for eight or nine days this degree of temperature is not particularly harmful. Baths and sponges are not necessary, and it would seem that the high temperature for that length of time is not more harmful than the disturbance which their administration involves. Cold may be applied to the head or to the afflicted side of the chest with the result of controlling the temperature to a certain extent. Coal tar antipyretics should never be used.

Each of the conditions of the circulation needs a different treatment. The first with high and often irregular fever, possibly with a low leukocytic count, and low muttering delirium, fresh air, if it has not already been used, cold sponges, normal salt solution, whether by hypodermoclysis or intravenous injection or proctoclysis, is valuable. Caffein is used in the form of caffein sodium benzoate hypodermically; strychnin also is valuable. Digitalis should be used, but its value is much more problematical. In the second condition, dilatation of the right side of the heart with a high blood pressure, cyanosis, with an accentuation of the second pulmonary sound, and bloodletting is of the greatest amount of value. Here, too, the use of digitalis is very valuable. Other cardiac stimulants also can be called into use such as caffein and ammonia, digitalis being the most useful. The third condition with sudden fall of blood pressure, running pulse and leaking skin is the most hopeless of all. Strychnin, caffein, the intravenous injection of epinephrin chlorid may be tried. In the author's experience, however, this is of little value. The pressure will rapidly rise, but is of extremely short duration. Strophanthin, or digitalis must be used hypodermically, with the hope of strengthening the heart muscle. Oxygen may be used and will give some comfort to the patient, but there is no lasting value by its use.

97. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1327.

98. **Acidosis.**—In all acute infections in which the diagnosis is not absolutely clear Palmer believes it is advisable to have urinalysis for acetone and diacetic acid; in fact, in routine urinalysis it is advisable to test for these substances, inasmuch as it might throw considerable light on certain obscure conditions. It is also advisable, in suspected cases, to estimate the carbon dioxid tension of the alveolar air.

Public Health Journal, Toronto

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100 Syphilis from Medical Aspect. A. McPhedran, Toronto.—p. 33.
101 Public Health Aspects of Venereal Diseases. C. J. Hastings, Toronto.—p. 37.
102 Attitude of Hospital. C. K. Clarke, Toronto.—p. 41.
103 Venereal Disease Problem from Military Standpoint. G. Bates. —p. 43.
104 Need for Sanitary Control and Minimum Standard of House Construction. F. Cartlidge, Moose Jaw, Sask.—p. 52.
105 Hours of Work in Relation to Efficiency and Output. J. W. S. McCullough, Toronto.—p. 60.

Southern Medical Journal, Birmingham

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106 *Correlation of Laboratory and Clinical Teaching. G. Dock, St. Louis.—p. 187.
107 *Significance of Hypertension. C. W. Strickler, Atlanta, Ga.—p. 191.
108 Renal Functional Tests. J. T. Geraghty, Baltimore.—p. 194.
109 Infant Stools as Diagnostic Aids to General Practitioner. W. Weston, Columbia, S. C.—p. 197.
110 *Treatment of Syphilis with Arsenic Preparations. E. H. Martin, Hot Springs, Ark.—p. 201.
111 Public Health Activities in Southern States with Suggestions for Increased Efficiency. W. S. Leathers, University, Miss.—p. 213.
112 Rôle of County Health Officer in Public Health Work.—T. M. Dye, Clarksdale, Miss.—p. 218.
113 *Health Insurance; Its Relation to Medical Profession. B. S. Warren, Washington, D. C.—p. 222.
114 Gastric Cancer. W. A. Bryan, Nashville, Tenn.—p. 230.
115 *Neglected Appendicitis. J. L. Crook, Jackson, Tenn.—p. 233.
116 *Treatment of More Common Fractures. L. E. Burch, Nashville, Tenn.—p. 237.
117 *Value of Genupectoral Position for Bastedo's Sign in Chronic Appendicitis. J. D. S. Davis, Birmingham.—p. 240.
118 *Basal Celled Cancers of Skin. H. H. Hazen, Washington, D. C. —p. 241.
119 Aural Phenomena Result of Unusual Influences. E. H. Cary, Dallas, Texas.—p. 249.
120 Submucous Resection of Nasal Septum. W. T. Patton, New Orleans.—p. 253.
121 Id.; Report of One Hundred Cases. C. S. Dodd, Petersburg, Va. —p. 257.

106. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1967.

107. **Significance of Hypertension.**—Of all the theories advanced as a cause of hypertension, Strickler believes the toxic to be most rational; and while the manner in which it acts cannot be explained nor can the agents be named, the author believes we possess the clinical evidence that they respond more quickly and remain well for a longer period of time when this condition has been relieved. Hypertension is not a cause of nephritis or arteriosclerosis, nor is it caused by them, but is associated with them and may be influenced to some extent by them. Worry, mental and physical strain may keep up a moderate hypertension.

110 and 113. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1966.

115 and 116. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1967.

117. **Bastedo's Sign in Chronic Appendicitis.**—Davis agreed with Goodman and Lueders that the Bastedo test is not pathognomonic of chronic appendicitis and that there is no constancy in the results obtained with it. But, he says, if the patient is placed in the knee chest position and a rectal tube introduced into the rectum, the sigmoid at once becomes inflated with air, straightens out, and fluid may be made to pass through the sigmoid up into the colon. So he came to the conclusion that failures were due to not getting air to the head of the colon. In a case in which he suspected a chronically inflamed appendix, he had inflated the rectum by the Bastedo method and failed to get pain on pressure over the cecum. He placed the patient in the knee chest position and inflated the colon, which caused acute pain at McBurney's point. When the patient was turned on the back, pressure

over the appendix caused severe pain. Since this experience he has been in the habit of placing all suspected chronic cases of appendicitis, who do not give pain on pressure before colon inflation, in the knee chest position for air distention with uniform results. In every case in which pain was so induced an inflamed appendix was found at operation.

118. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1968.

Vermont Medicine, Rutland

February, II, No. 2

122 Fractures of Lower End of Humerus. J. B. Wheeler, Burlington. —p. 29.

Washington Medical Annals

January, XVI, No. 1

123 Acidosis and Renal Insufficiency. W. J. Mallory, Washington, D. C.—p. 11.
124 Case of Spurious Hermaphroditism. J. Constas, Washington, D. C. —p. 19.
125 Two Cases: Cystic Dilatation of Ends of Ureters and Foreign Body in Bladder. A. Kemble, Washington, D. C.—p. 20.
126 Fracture of Femur; Newer Methods of Treatment. W. P. Carr, Washington, D. C.—p. 23.
127 Congenital Pyloric Stenosis in Baby Five Weeks Old—Operation. W. B. Marbury, Washington, D. C.—p. 27.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

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1 Some Aids to Accuracy and Rapidity in Roentgen Ray Localization. W. Oram.—p. 277.
2 Case of Multiple Exostoses and Abnormalities of Osseous System Occurring in Soldier on Active Service in France. J. McKail. —p. 286.
3 Use of Localization Methods in Elucidation of Doubtful Shadows in Kidney Region. F. Hernaman-Johnson.—p. 291.
4 Two Radium Applicators for Malignant Disease of Mouth and Pharynx. C. H. Bubb.—p. 293.

British Journal of Children's Diseases, London

December, 1916, XIII, No. 156

5 Heart Disease among Elementary Schoolchildren. J. Priestley. —p. 353.
6 Congenital Tuberculosis. F. P. Weber.—p. 359.

British Medical Journal, London

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7 Influence Exerted by Military Experience of John Hunter on Himself and on Military Surgeon of Today. G. H. Makins.—p. 213.
8 *Case of Rotation of Liver on Its Vertical Axis. J. Howell. —p. 219.
9 Effects of Cinematograph Displays on Eyes of Children. N. B. Harman.—p. 219.
10 Case of Puerperal Fever Treated by Streptococcic Vaccine. R. Kay.—p. 221.
11 Case of Trench Fever Contracted in England. R. D. MacGregor. —p. 221.
12 *So-Called Trench Fever as Seen in England. J. Ramsay.—p. 222.

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13 Principles Governing Early Treatment (Absolute Rest) of Infantile Paralysis. W. C. MacKenzie.—p. 249.
14 *Modern Treatment of Diabetes Mellitus. O. Leyton.—p. 252.
15 Cardiac Disease in Soldiers and Recruits. W. Scarisbrick.—p. 254.
16 *Hypochlorous Solution Electrically Produced from Hypertonic Saline as Disinfectant for Septic Wounds. J. M. Beattie, F. C. Lewis and G. W. Gee.—p. 256.
17 *Autodisinfection of Wounds by Use of Ether Solution. A. Distaso and T. R. Bowen.—p. 259.
18 Relation of Type of Coccus to Type of Disease in Meningococcal Meningitis. A. M. Kennedy and C. C. Worster-Drought.—p. 261.

8. **Rotation of Liver on Its Vertical Axis.**—Howell was preparing to perform cholecystotomy for the removal of gallstones on a female patient, aged 33, when he discovered this anomaly. The liver had rotated on its vertical axis through an angle of approximately 90 degrees; the lobe opposite the incision and covered by the suspensory ligament was the left, with the characteristic omental tuberosity on its under surface, and the quadrate lobe, instead of being opposed to the abdominal wall between the midline and right semilunar lines, was related to the right hypochondrium between the anterior and posterior axillary lines. It was impossible to see the gallbladder incision, though it extended from the margin of the ribs to opposite the umbilicus. Howell tried to rotate the liver back again to its normal position, grasping it with both hands to make the attempt, but found that it was immovably fixed in this position, nor could the gallbladder be made to present in the incision. He therefore made a transverse incision at right angles to his first incision back as far as the midaxillary line. The gallbladder could now be opened in the corner of this incision, and eighty-one small calculi were evacuated.

12. **Trench Fever as Seen in England.**—It seems that in the training camps of England exists a disease which for all practical purposes is indistinguishable from the trench fever of the overseas troops. It occurs in men who have never been in the trenches, and who are not infected with lice.

14. **Modern Treatment of Diabetes Mellitus.**—Leyton suggests that the Allen treatment be called the "treatment by alimentary rest," for three reasons: (1) the alteration in metabolism which occurs when food is withheld is due to rest of the various glands which are stimulated during digestion, and not to the simple absence of food; (2) to prevent confusion between the Allen treatment and the Guelpa treatment, which has been called "the starvation treatment" for quite a long time; (3) starvation treatment is a name which does not commend itself to patients. Since the treatment entails alimentary rest for several days, it is obvious that not every case should be submitted to it.

16. **Electrically Produced Hypochlorous Solution.**—The principle on which the apparatus originally devised by one of the authors (Lewis) works is that when an electric current of suitable strength is passed through even a weak solution of salt, part of the salt is decomposed, as also is part of the water. As a result, chemical reaction occurs and a body of high disinfecting value is produced. Experiments with this type of apparatus showed that bacteria of all kinds could be destroyed rapidly and effectively. The main chemical agents produced are hypochlorous acid and sodium hypochlorite. Cases are reported to support the efficacy of this antiseptic. The bactericidal action of this hypochlorous solution is said to be high, and it has the advantage over the ordinarily used antiseptics in that it does not coagulate albuminous material, and thus form a protecting coagulum. It has a slight stimulant action, but is nonirritating. The lymph flow in the wound is encouraged by the hypertonic solution which is used for the production of the hypochlorite. Surface bacteria on septic foci seem to be destroyed almost immediately, and the stimulant action on the lymph flow tends to wash to the surface the more deeply situated organisms. (This lymph increase is very evident in the wounds treated with this solution.) The solution can be produced very simply, and at comparatively small cost.

17. **Use of Ether in Autodisinfection of Wounds.**—The authors' aim has been to create embryonic tissue regeneration in wounds by a sort of "quickening" process. Ether was selected on account of its marked stimulating power. A series of patients were treated by irrigation with a 2 per cent. solution, using about 2 liters once daily. Sections of the granulations grown during the treatment were made. From them the authors learned that regeneration of the tissues takes place normally. It is, however, to be noted that the number of polymorphonuclear leukocytes present was very small, but lymphocytes were present in fair numbers. The most striking feature was the marked production of fibroblasts. The new blood vessels were very richly distributed, and quickly formed in the deep layers. The upper layers showed fibroblasts which were in the stage of forming vessels. On staining the sections by Gram's method and fuchsin no microbes were seen. The total absence of fibrin (Weigert-Gram method) was another striking feature in the sections. The authors believe that the observations prove that the leukocyte defensive property is not to be taken into consideration. The bactericidal action of the blood is emphasized. The function of the ether is to stimulate the growth of the

tissues without clotting the fibrin, and providing thus the newly-formed tissue with free and constant lavage with blood. The discharge of patients from the hospital is materially accelerated by the use of the ether method, on account of its comparatively rapid healing power.

Journal of Laryngology, Rhinology and Otology, London

February, XXXII, No. 2

19 Orthopedic Treatment of Laryngeal Stenosis. C. Jackson.—p. 51.
20 Sphenoid Sinus; Present Day Value of Surgical Procedure. R. H. Skillern.—p. 52.
21 Method of Closing Postaural Fistula. L. J. Curtin.—p. 66.

Journal of Pathology and Bacteriology, Cambridge

April, 1916, XX, No. 4

22 *Etiology of Scarlet Fever. W. Mair.—p. 366.
23 *Pathology and Bacteriology of Gas Gangrene. K. Taylor.—p. 384.
24 *Reactions of Tubercle Bacillus to Sperm Oil and Its Constituents. A. H. Miller. Chemistry of Sperm Oil. A. R. Smith.—p. 395.
25 *Whey Medium for Gonococcus. T. Watabiki.—p. 408.
26 *Effects of Vaccine Sensitized with Homologous Immune Serum, as Compared with Those of Nonsensitized Vaccine; Experimental Study. S. Kakehi.—p. 410.

22. **Etiology of Scarlet Fever.**—The *Diplococcus scarlatinae*, Mair says, can be demonstrated in the throats of scarlet fever patients during the first week of the disease in 87 per cent. of the cases, and it disappears as a rule from the throat about the fifth week of convalescence, persisting in an as yet undetermined percentage of cases for a much longer period. The diplococcus produces in monkeys a disease which in many respects resembles scarlet fever, although it has little tendency to produce septicemia in the monkey. The *Diplococcus scarlatinae* is confined to the region of primary invasion, which is usually the throat, and there produces toxins which are poured into the blood stream. Another feature common to the disease in man and in the monkey is scarlatinal arthritis. No definite evidence of the occurrence of nephritis in the monkey has yet been obtained. The most outstanding clinical feature of scarlet fever, namely, the rash, has not been reproduced in the monkey. Additional evidence in favor of the diplococcal theory, Mair says, is found in the fact that complement fixation reactions occur with much greater frequency, and with greater intensity in scarlet fever than in control cases. In one case this reaction was found to be distinctly positive on the third day of the disease, while on subsequent examinations on the tenth and seventeenth days it could not be detected. This observation is very much against the view that the diplococcus is a secondary invader. Finally, the biologic characters of the diplococcus are not inconsistent with known facts in the epidemiology of scarlet fever. Even if further research makes it necessary to identify with one or other subgroup of the *Diplococcus scarlatinae* all the bile soluble diplococci found in normal throats, Mair says, no valid objection could be made for that reason on statistical grounds, to the diplococcal theory of scarlet fever.

23. **Pathology and Bacteriology of Gas Gangrene.**—It is suggested by Taylor that the fatal cases of infection by the gas bacillus pass through the following phases: Phase 1, dormant stage; localized infection of the wound; Phase 2, stage of acute gaseous distention, the result of obstruction to the escape of the gas generated locally in the wound; Phase 3, explosive stage; this is characterized by the rapid extension of the swelling associated with subcutaneous crepitus; Phase 4, stage of systemic intoxication; Phase 5, stage of septicemia. The terminal invasion of the blood by the bacilli, when it happens, is probably a very late phenomenon, occurring approximately at the time of death. The first phase, or the stage of local infection in the wound with the free escape of a small amount of gas, represents a common type seen in fresh wounds. The great majority of cases do not pass beyond this stage. When, however, for any reason, the free escape of the gas becomes interfered with, the second phase, with its clinical picture of gas gangrene, develops rapidly and passes frequently within a few hours into the third stage. If sufficient drainage be established at this point for the escape of the gas, and too large a mass of muscle has not been destroyed, recovery is usual; otherwise the patient passes shortly into the stage of intoxication, and dies within a few hours, frequently before the fifth or septicemic stage is reached. The possibility of gas embolism cannot be excluded in all cases, but seems improbable as a cause of death.

24. **Reactions of Tubercle Bacillus to Sperm Oil.**—Miller found that the tubercle bacillus when grown on sperm oil mediums is converted into "banded" and "beaded" forms. This is also shown in its first stages on olive oil medium, but does not occur with other fatty substances tested. It appears to be due, in part at least, to the presence of unsaturated fatty acids in the form of esters.

25. **Whey Medium for Gonococcus.**—Watabiki after long experience with the cultivation of gonococcus, maintains that blood agar and blood bouillon are the most suitable culture mediums with which to obtain excellent results. Moreover, if blood cannot easily be had for the purpose, whey agar or whey bouillon can be used as substitutes for blood agar or blood bouillon.

26. **Effects of Sensitized Vaccine.**—Dealing with the *B. pseudotuberculosis-rodentium* (Pfeiffer), Kakehi found that the following are the effects on the rabbit of the killed vaccine sensitized by Besredka's method, as compared with those of nonsensitized: 1. The sensitized vaccine has one slight advantage in that the increase of temperature in injected animals is a little lower on the average than that produced by the nonsensitized, not only after the first injection, but also after succeeding injections. 2. The animals can generally bear the various series of injections of the sensitized vaccine with much less loss of weight than when the nonsensitized vaccine is used, so that the former appears to be less toxic, although the number of animals which died of injection is not sufficient to decide this point. 3. As to the degree of immunity obtained by the injection of each kind of vaccine, there is no appreciable difference, for they both give about the same degree of resistance against various lethal doses, when the animals are compared ten days after the last injection of vaccine. 4. The production of antibodies in the serum, testable by agglutination and complement fixation, is much less with the sensitized than with the nonsensitized vaccine under the same conditions. Thus the estimation of these antibodies in vitro does not show the actual degree of immunity given by the former, as compared with the latter.

Journal of Tropical Medicine and Hygiene, London

February 15, XX, No. 4

27 Acanthokeratodermia Precornufaciens. A. J. Chalmers and S. Atiyah.—p. 37.

Lancet, London

February 24, I, No. 4878

28 *Dupuytren's Contraction of Palmar Fascia; Dupuytren's Life and Works. J. Hutchinson.—p. 285.
29 Hunterian Tradition in Cardiac Research. W. L. Brown.—p. 291.
30 *Specificity in Antiseptics. K. Taylor.—p. 294.
31 Intestinal Protozoa in Salonika War Area. W. Roche.—p. 297.
32 Method of Plaster Splinting for Treatment of Knee Lesions. G. Davis.—p. 298.
33 Starvation Treatment of Young Diabetic. P. C. C. Fenwick.—p. 299.

28. **Dupuytren's Contraction of Palmar Fascia.**—That all cases (mild or severe) of Dupuytren's contraction can be treated successfully by either subcutaneous division or open excision of the fascial bands, Hutchinson contends is not true. He emphasizes also the dangers of splint treatment after the operation. The V Y method in either of its forms, whether the angular reflected flap is made of skin only or of skin and fascia together, Hutchinson says, is not a good one. It involves too much scarring of the palm, the prolongation of the fascia to the second phalanx cannot be dealt with by this method. He has never known it successful in Dupuytren's contraction. Again, it is not satisfactory to remove much skin from in front of the bent fingers and to trust to skin grafts. The wide excision of skin and fascia, followed by transplantation of a flap from the side of the chest (Paul Berger's method) has nothing whatever to recommend it. Among other faults, it fails entirely to deal with the contraction of the first interphalangeal joint.

With the proviso that all scars in the palm may prove a slight drawback and should be made as short as is consistent with the thorough dissection of the contracted bands, further that it is useless to lay down exact lines of incision for differing cases, the following points are emphasized by Hutchinson: 1. The main incision must be linear and vertical, over or closely parallel to the ridges of palmar fascia. Small transverse incisions at the front of the web may be needed, and any prolongation of the fascia in front of the first phalanx must be followed down and dissected out. 2. In the case of the middle or ring finger, it is impossible to avoid placing the incision toward the midpalm. In the case of the little finger alone the incision may be made rather to the ulnar side of the hand, where the skin is more supple and less subject to pressure. 3. In closing the wounds the finest silkworm gut (ophthalmic) should be used. It is rarely necessary to leave any raw area to granulate up, especially if the head of the first phalanx has been excised and tension in the front of the finger thus removed. Should a small plastic operation be required, a tongue-shaped flap with its base upward might be taken from the side of the digit concerned and shifted over so as to lie transversely. As such a flap contains the whole thickness of the skin and its blood supply, and is fixed in place by two or three fine sutures, it is much better than the epithelial grafts advocated in the textbooks.

30. **Specificity in Antiseptics.**—A small group of substances of a recognized antiseptic value was examined by Taylor. It comprised phenol, cresol, thymol, Dakin's solution, quinin hydrochlorid, ammonium and sodium fluorids, salicylic acid and sodium chlorid. Phenol and cresol proved more active against the streptococcus than against the staphylococcus, and showed very little activity against the gas bacillus. Thymol showed a fair degree of activity against the streptococcus, was less active against the staphylococcus, still less so against the gas bacillus, and showed practically no action on pyocyaneus. Dakin's solution showed a moderate activity against the staphylococcus, was nearly inert against the *B. pyocyaneus* and the gas bacillus, but was more active against the streptococcus. Quinin showed its greatest activity against the gas bacillus, was fairly active against the streptococcus, but showed very little action on the staphylococcus and still less on the *B. pyocyaneus*. Sodium fluorid was more active than ammonium fluorid throughout. Both showed themselves active against the gas bacillus, but less effective against the other three organisms. Salicylic acid showed very little activity against streptococcus, pyocyaneus, or staphylococcus, but was fairly active against the gas bacillus. The concentration of sodium chlorid required to inhibit the growth of these four organisms also varied considerably. About 4 per cent. was required to prevent the growth of the gas bacillus, a slightly higher concentration to inhibit streptococcus, and 14 per cent. failed to inhibit the growth of the other two organisms.

Taylor believes that further analytical study of antiseptics will result in the discovery of dressings specific for one or more groups of bacteria. By a successive application of these dressings the organisms present in the wound may be reduced in number or eliminated, one variety at a time, and true sterilization of a suppurating wound accomplished. But first the concept of the "general antiseptic" must go by the board and the search for a cure-all be recognized as unprofitable.

Archives des Maladies de l'Appareil Digestif etc., Paris

1916, IX, No. 3, pp. 109-168

34 *Roentgen Findings in Twenty-Eight Cases of Cancer of Large Intestine. R. Bensaude and G. Guénaux.—p. 109. To be continued.

35 *The Gastro-Intestinal Sequels of Dysentery and Paratyphoid. J. Carles and Froussard.—p. 136.

36 *Complement Fixation Test in Diagnosis of Echinococcus Disease; Sixteen Cases. F. Gallart-Monés (Barcelona).—p. 148.

37 Duodenal-Pyloric Ulcer Palpated to Left of Umbilicus. A. Mathieu and A. S. Alivisatos.—p. 154.

38 Stenosis of the Pylorus Consecutive to Gallstone Cholecystitis. A. Mathieu and A. S. Alivisatos.—p. 159.

34. **Roentgen Findings with Cancer of Large Intestine.**—Bensaude and Guénaux compare the clinical course in twenty-eight cases of cancer of the large intestine with the Roentgen findings at different periods, and also in some suspects. They expatiate parenthetically on the superior advantages of using barium sulphate in the form of a gelatinous precipitate, instead of bismuth, for the Roentgen examination. A stable and homogeneous emulsion of this is readily made, they say, with a mucilaginous vehicle, such as a mixture of 2.5 gm. gum acacia; 7.5 gm. gum tragacanth; 1 gm. gluten; 2 gm. agar and 10 gm. glycerin. This quantity emulsifies 200 gm. of the gelatinous precipitate of the barium sulphate (equivalent to 100 gm. of the dry salt). It is possible to make tablets from the mixture. By dissolving the tablet representing 100 gm. of the dry salt in hot water, it is ready for use at any time. They declare that the fluidity, homogeneousness and stability render this fluid a great improvement over others for the purpose, especially for rectal injection. They add that thousands of experiences during the last seven years in different countries have shown the harmlessness of chemically pure barium sulphate for internal use.

35. **The Sequels of Dysentery and Paratyphoid.**—Carles and Froussard have encountered fifty cases of chronic gastro-intestinal ulceration which they were able to trace to some old attack of dysentery or paratyphoid. Merely symptomatic treatment is of no avail in these cases. They require measures to combat the dysentery (emetin or ipecac), kept up systematically for months as needed, with frequent pauses, even through periods of apparent calm. Diphtheria antitoxin should be given if the dysentery is of diphtheric origin. When paratyphoid is responsible, they give hexamethylenamin by the drip method, with iodin internally. They have had no experience with antiparatyphoid serum for this purpose, but regard it as theoretically justified. It might aid in the production of antibodies reenforcing the organism in its efforts to conquer the tenacious germs. Local measures may supplement the above, e. g., cauterizing the lesions through the rectoscope. The complete recovery under the treatment outlined confirmed in many cases the assumptions as to the nature of the trouble. Before this the men had long seemed doomed to chronic invalidism. In diagnosis, one must bear in mind the constant possibility of the prolonged action, over long periods, of a primary attack of any form of dysentery or paratyphoid. Also that this is just as liable to occur with either disease when the primary attack was of an abortive or even latent type. We must disabuse our minds of the idea that amebic dysentery is an acute affection. On the contrary, it is essentially chronic. It ranks with syphilis and malaria in this respect. The same is true of bacillary dysentery only to a lesser extent.

36. **Complement Fixation in Echinococcus Disease.**—Gallart-Monés analyzes his experiences with sixteen operative cases of echinococcus disease of the liver in which he obtained a positive reaction with the hemolytic test in only 69 per cent. Positive findings are illuminating, but the fact that 31 per cent. negative responses were obtained, throws doubt on the diagnostic significance of a negative reaction. No connection between the antibody content of the serum and the eosinophil count could be detected.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

1916, V, No. 10-11-12, pp. 285-376

39 *Pus in the Uterus. (Pyométrie.) E. Chomé.—p. 285.

40 *The Histophysiology of the Placenta at Different Stages of the Pregnancy. (La villosité du placenta. Ses formations mitochondriales et ses processus d'élaboration.) M. de Kervily.—p. 296.

41 *Hegar's Sign of Early Pregnancy Reappears in the Normal Puerperium. A. Turenne and C. Colistro (Montevideo).—p. 350.

42 *Treatment of Gastro-Intestinal Hemorrhage in the Newborn. L. Triollet.—p. 354.

39. **Pyometrium.**—Chomé describes a case of pus accumulated in the uterus, and urges that the uterus had better be removed in such cases in elderly women. No matter how carefully the organ is rinsed and drained, review of the literature shows that recurrence is the rule. Another argument in favor of hysterectomy in case of pyometrium is that cancer is often at the bottom of the trouble, as the obstruction responsible for the accumulation of pus is the work of senile

endometritis. Cancer was found in his case. In young women the mechanism is different, the trouble being merely a suppurating hematometrium. Proper drainage restores normal conditions as a rule.

40. **Histophysiology of the Placenta.**—De Kervily devotes seven pages to the long list of his conclusions from personal research on the placental syncytium, the Langhans cells, the connective tissue cells of the placental villi, and the physiology of the villi as a whole. He appends further an alphabetically arranged and extensive bibliography but with no titles.

41. **Sign of Recent Childbirth.**—Turenne and Colistro have been impressed by the reappearance after the childbirth of Hegar's sign, which is usually regarded as restricted to early pregnancy. The disappearance anew of the sign before the twentieth day after childbirth confirms the other signs of normal involution of the uterus. The sign proved instructive in a medicolegal case described.

42. **Gastro-Intestinal Hemorrhage in the Newborn.**—Triollet says of epinephrin, in treatment of gastro-intestinal hemorrhage in the newborn, that its advantages are not enough to counterbalance the gravity of the accidents which such a potent measure may entail. At the Tarnier maternity, excellent results have been obtained with calcium chlorid given by the mouth, supplemented by subcutaneous injections of gelatinized serum. Neither alone answer the purpose, but the combination of the two is remarkably effectual. The newborn with gastro-intestinal hemorrhages is given every two hours a teaspoonful of a 2 per cent. solution of calcium chlorid to a total of 1 or 2 gm. of the chlorid in the twenty-four hours. This is kept up for a day or so after all traces of hemorrhage have subsided. Each day the child is given in the scapular region a subcutaneous injection of 20 c.c. of gelatinized serum. No food is allowed; a few teaspoonfuls of boiled water every two hours are given to alternate with the chlorid and assuage the thirst. The child is kept warm with hot water bottles. When the hemorrhages are definitely suspended, breast feeding is cautiously resumed. On suspicion of syphilis, specific treatment is given along with the other measures. No directions are given for preparing the *sérum gélatiné* beyond that it is sterilized for thirty minutes at 120 C.

Bulletin de l'Académie de Médecine, Paris

January 30, LXXVII, No. 5, pp. 115-160

43 Measures Suggested for the Welfare of Munitions Workers' Nurslings. Doléris and others.—p. 116.
44 *Dry Hypochlorite plus Boric Acid for First Dressing for War Wounds. H. Vincent.—p. 136.
45 Extraction of Projectiles from the Pedicle of the Lung. R. Le Fort.—p. 151.
46 Acute Myelitis as Military Epidemic. G. Etienne.—p. 153.
47 Elephantiasic Edema of the Limbs after War Wounds. Mériel. —p. 156.

44. **Prophylactic Treatment of War Wounds.**—Vincent urges that the wound should be powdered thick with a dry mixture of 10 parts calcium hypochlorite with 90 parts boric acid. They are pulverized separately, mixed very carefully, and kept dry in colored glass. His experience with this method in the French colonies and in the present war has confirmed the potent prophylactic action of this powder, he reiterates, when applied at once after the thorough mechanical cleansing of the wound. It does not harm living tissues nor change them, and seems to be perfectly tolerated, while it favors cicatrization. He has used it in direct application even to the brain, and never noted any harm from it. Wounds of the thorax and abdomen are the only ones not amenable to this treatment. The powder is poured freely from the flask into all the crevices of the wound, and is insufflated into the inaccessible passages. The powder in the wound dissolves slowly, not being very soluble. Calcium hypochlorite usually contains about 6 per cent. calcium chlorid, which has, further, a hemostatic action.

Journal de Médecine de Bordeaux

December, 1916, LXXXVII, No. 14, pp. 271-288

48 *Overlooked Heroes of the War. (Les héros de la maladie.) P. Mauriac and M. Gaud.—p. 271.
49 *Malingering among Soldiers. (La carotte.) E. Blum.—p. 274.
50 Poisonous Mushrooms. (Champignons vénéneux.) Creyx.—p. 280.

48. **Overlooked Heroes of the War.**—Mauriac and Gaud refer to the soldiers in the trenches who have concealed some serious trouble and kept up their duties to the end, or until will power could no longer keep them on their feet. They cite several typical cases of men with Addison's disease overcoming their asthenia and fighting to the end, never hinting a word of complaint. One man with meningitis kept at his work of burying the corpses, notwithstanding his dizziness and vomiting. Others with febrile tuberculosis and night sweats kept doggedly at work, concealing their symptoms. To the officers, to the crowd, these men merely seem "unlucky"; no medals go to them for this. But Mauriac and Gaud declare that the *héros de la maladie* often display more gallantry and devotion than many who have medals pinned on their breasts.

49. **Malingering in Soldiers.**—Blum reviews the various factitious affections that may be induced to escape active military service. The list is a long one, and the reports of simulators run through history from Hippocrates downward. He says that the word "poltroon" is a relic of voluntary mutilation to escape military service. The men who cut off their thumb were called *pollices truncí*. The army medical men now have to be on the alert to detect simulation, not only in picric jaundice but in disturbances of all kinds, from the stomach trouble induced by ingestion of oil or tobacco, "hemoptysis" from pricking the throat, "diabetes" from phlorizin or ammonium oxalate, edema of the legs from a tourniquet, abscesses from a thread soiled with tooth tartar, to all kinds of skin affections and discharges induced and maintained by irritating or infectious substances. Factitious epileptic seizures are easily differentiated. The discovery of a fork that fitted the marks in the skin upset the story of one man who claimed to have been bitten. The prevalence of factitious jaundice has fastened the name "carrots" on these malingerers.

Paris Médical

January 27, VII, No. 4, pp. 69-84

51 Dysenteriform Enteritis. C. Lesieur.—p. 69.
52 War Wounds of the Knee; Ninety Cases. R. Grégoire.—p. 75.
53 Associated Paralysis of Ninth, Tenth and Eleventh Nerves. (Sur le syndrome du trou déchiré postérieur.) M. Vernet.—p. 78.
54 Improvised Hammer for Testing Reflexes. Perrin.—p. 81.
55 Pedal Control of Switch to Turn Electric Current On and Off in Roentgen Examinations. (Commutateur à distance pour postes radiologiques.) C. Roch.—p. 82.

Presse Médicale, Paris

January 22, XXV, No. 5, pp. 41-56

56 *Technic for Gastro-Enterostomy and Exclusion of the Pylorus in Treatment of Duodenal Ulcer. V. Pauchet.—p. 41.
57 *Syphilis in Relation to Nephritis under or near Forty. (Néphrites sèches et syphilis.) P. Merklen and G. Heuyer.—p. 44.
58 Chronic Gonorrheal Urethritis in Women. L. Bizard and P. Blum. —p. 46.
59 Malleable Trellis Frame for Immobilization. L. Lemaire.—p. 48.
60 Cardiac Insufficiency after Exposure to Chlorin Gas. C. Liaut. —p. 49.

56. **Duodenal Ulcer.**—Pauchet explains his technic, as followed in 100 cases, with twelve illustrations. Over 75 per cent. of the patients were restored to complete health, and the others were all much improved except 5 per cent. who required a second operation. He excludes the pylorus by suturing the mucosa of the stomach to shut it off. He makes a transverse incision in the anterior wall and incises the mucosa of the posterior wall to correspond. Then the cut edges of the mucosa are sutured to form a bag, shutting off the pylorus below, and the incision in the anterior wall is sutured. The posterior wall, back of the mucosa, is not molested. In one of his operative cases, a spastic contraction of the wall of the duodenum was mistaken for an ulcer and the gastric neurosis persisted afterward as before. The failure in the other cases was because the suture was made too close to the pylorus and it did not hold, or else such a coarse thread was used that it hung there for months and years, finally setting up a peptic ulcer. In one case there was trouble later because the mesocolon was unusually fat and it had been sutured to the anastomosis, instead of the stomach wall. When the mesentery is fat there is liable to be retraction later.

57. **Syphilitic Nephritis.**—In the three cases here described by Merklen and Heuyer as also in others in their practice, there was nephritis without dropsy but with high blood pressure or uremia, in persons under 50 and sometimes only 40 or under. Infection is responsible for the clinical picture, not arteriosclerosis, as in the classic picture over 60. Syphilis is sometimes responsible, but other infections may likewise be incriminated in other cases. In a series published recently by Lian, five of the ten patients gave a positive Wassermann reaction. The necropsy findings in one of their cases, in a man of 35, included a large cicatrix in one suprarenal, probably the relics of a gumma. The arteries in the brain were scattered along their course with atheromatous nodules, almost like rows of beads, and the kidneys showed endarteritis and sclerosis. The infection or infections causing the trouble in persons of 40 or under may have escaped recognition; syphilis should be excluded first of all. The syphilis is usually of long standing, so that it is a tertiary renal symptom. There are usually manifestations also on the part of the heart or aorta. To date, no benefit from specific treatment of the syphilis at this stage has been realized. In persons of about 60 or over, on the other hand, the kidney trouble is the localization in the kidneys of a general tendency to arteriosclerosis.

Progrès Médical, Paris

January 20, XXXII, No. 3, pp. 19-28

61 *Syphilitic Ophthalmoplegic Headache. A. Poulard.—p. 19.
62 Epidemic of Bacillary Dysentery. D. Gilbert.—p. 22.
63 The Professional Patrimony of Physicians. A. Satre.—p. 25.
64 Importance of Cytologic Examination of the Gastric Content in Diagnosis of Cancer of the Stomach. H. Codet.—p. 26.

61. **Headache with Ophthalmoplegia.**—Poulard remarks that this is almost invariably of syphilitic origin. He insists on treatment as for syphilis, even when the Wassermann test and the spinal fluid give negative findings. Ophthalmoplegic migraine is also a recurring paralysis of the oculomotors, always accompanied by headache. He warns further that syphilitic meningitis may be accompanied by fever. He has several patients who, he is confident, owe their lives to the tenacity with which he waged war against the syphilis he suspected. With brain tumor causing ophthalmoplegia, there is usually choked disk. In case of the slightest doubt, give treatment as for syphilis. The ophthalmoplegic headache is the result of meningitis at the base which spreads to the oculomotors and induces perineuritis, and there seems to be a connection between it and tabes or general paralysis. A history of old ophthalmoplegic headache is sometimes found with tabes or may be its first manifestation, or it may occur in the course of tabes. The headache soon yields to proper treatment, and does not return, but the outlook for the future is a little less favorable.

Revue de Chirurgie, Paris

1916, XXXV, No. 7-8, pp. 1-244

65 *War Wounds of Larynx and Trachea. Treatment at the Time and Later. E. J. Moure and G. Canuyt.—p. 1.
66 Fistulas Consecutive to War Wounds of the Skull. C. Villandre.—p. 83.
67 *Cartilage Grafts from the Calf. (Recherches sur les greffes cartilagineuses hétéro-plastiques.) L. Imbert, C. Lheureux and Rouslacroix.—p. 111.
68 Extraction of Projectiles from the Pelvic Belt of Bone and Muscle. G. Leo.—p. 129. Conclusion.
69 Varieties, Evolution and Treatment of Gunshot and Shell Wounds. P. Dézarnaulds.—p. 164.
70 *Experiences with Extensive War Wounds. (Les grandes blessures de guerre.) A. Chalier and R. Glénard.—p. 179. Conclusion.
71 *Minor Points of Technic in End-to-End Suture of Intestine. (Un point de technique de l'entérorraphie circulaire.) J. Fiolle.—p. 231.
72 The Field Dressing Station. (A propos du fonctionnement intensif d'une ambulance chirurgicale de 1re ligne et du rôle d'un poste chirurgical avancé.) A. Martin.—p. 235.

65. **War Wounds of Larynx and Trachea.**—Moure and Canuyt relate that they have been constantly successful with tracheolaryngostomy in thirty-one cases, and they describe with minute detail the measures required at first and the procedures for repair later. The men not only breathe naturally but they are able to speak with a loud and intelligible voice although they have lost not only their vocal cords but often the false vocal cords and part of the aryteno-epiglottic folds. Cicatricial tissue takes the place of the vocal cords.

67. **Calf Cartilage Grafts.**—The grafts were studded with perforations and fitted into the gap in the skull or at other points desired, under local anesthesia. A few typical cases are described in detail. In all, the cartilage flap softened in the course of a month and its elements were absorbed, an irregular sheet of connective tissue fiber taking its place in the course of a few months.

70. **Extensive War Wounds.**—This part of Chalier and Glénard's report of their experiences with 1500 cases of extensive gunshot and shell wounds, is devoted to wounds of the chest.

71. **Minor Points in the End-to-End Suture of the Intestine.**—Fiolle does away with the difficulty otherwise experienced in starting to suture the serous coats together after the mucous membranes have been sutured. At the point of attachment of the mesentery, the serosa-serosa suture is awkward and blind. Matters are simplified by passing a thread through both stumps at the point of attachment of the mesentery, before any other suturing is done. The needle is passed, perpendicularly to the axis of the intestine, through the thickness of the wall but sparing the mucosa. Passed thus through both stumps, they are approximated and the ends of the thread are tied and left long and hanging loose. This thread thus joining the stumps does not enter the lumen, but holds each stump about 2 mm. from the cut edge. The mucous membranes are then sutured all around. Then with one of the long ends of the enteromesenteric suture thread the serous coats are approximated and sutured on one side half way around, and with the other long end the seroserosa suture is completed.

Archiv für klinische Chirurgie, Berlin

1916, CVII, No. 4, pp. 533-693. Last indexed March 24, p. 943

73 External Pharyngotomy and Flap Plastic Operation for Supralaryngeal Stenosis of the Pharynx. G. Axhausen.—p. 533.
74 Technic for Plastic Operations on the Skull. (Schädelplastik.) G. Axhausen.—p. 551.
75 Multiple Callous Gastric Ulcers. (Zur Kenntnis und operativen Behandlung des multiplen callösen Magengeschwürs.) E. Lick.—p. 575.
76 *Nerve Blocking between Two Tourniquets. (Leitungsanästhesie am Oberschenkel durch Infiltration des incarcerierten Querschnitts.) R. Sievers.—p. 595.
77 War Aneurysms. (Kriegsaneurysmen.) H. v. Haberer.—p. 611.

76. **Nerve Blocking Between Two Tourniquets.**—Sievers relates that he has been able to operate on the thigh or leg without pain in twenty cases by local anesthesia induced by the infiltration technic applied to the segment of the limb, 2 or 3 cm. wide, between two broad constricting elastic bands. In from twenty to thirty minutes the limb below this segment can be operated on, even with operations taking up to an hour and a half. The analgesia keeps up as long as the circulation below is interrupted. The constricting band is applied only tight enough to arrest the circulation. Two illustrations accompany the article.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 14, XXXVIII, No. 4, pp. 49-64

78 *Postinfectious Thyroid-Hypophysis Meiopragia. (Sindromi pluriglandolari.) F. Dematheis.—p. 49.
79 Projectile in Pleural Cavity. (Diverso comportamento della pleura secondo la forma del proiettile.) G. Ceresole.—p. 51.

January 18, No. 5, pp. 65-80

80 Undulant or Malta Fever; Two Cases. (Febbre melitense.) C. Chiri.—p. 68.

78. **Postinfectious Pluriglandular Disturbances.**—In Dematheis' case the pluriglandular symptoms developed ten days after recovery from a two months' course of paratyphoid. The symptoms indicated suffering from lack of both thyroid and hypophysis secretion, as is fully described, and the man was given both thyroid and hypophysis extract, with prompt and durable benefit.

Policlinico, Rome

January 21, XXIV, No. 4, pp. 89-104

81 The Deep Reflexes in General Anesthesia. (I riflessi profondi nella narcosi.) L. Roncoroni.—p. 89.
82 *Tapeworm in Soldiers. (La teniasi nei soldati.) A. Borini.—p. 91.

January 28, No. 5, pp. 129-164

83 Treatment of War Fractures. L. Cherubini.—p. 129.
84 Present Status of Our Knowledge of Acute Poliomyelitis. G. Dragotti.—p. 135.
85 *Gum Camphor Preserves Substances and Solutions that Spoil Easily. R. Romanelli.—p. 142.
86 Importance of Dental Service for the Troops Exposed to the Vicissitudes of Trench Life. E. Giovannini.—p. 145.

January, Medical Section, No. 1, pp. 1-52

87 *Clinical Study of Evolution of Tabes. P. Ciuffini.—p. 1.
88 *Nature and Functions of the Eosinophil Blood Cells. R. Marchesini.—p. 26.

82. **Tapeworm in Soldiers.**—Borini found tapeworms in twenty among 3,000 soldiers in an Italian troop, that is, in 0.75 per cent. It was associated with other helminths in half of the cases, and one man had two tapeworms. The *Tenia mediocannellata* was most frequent. None of the men presented anemia or other appreciable disturbance from the presence of the tapeworm.

85. **Scrap of Gum Camphor Preserves Solutions that Putrefy Readily.**—Romanelli drops a scrap of gum camphor into the bottle. It floats on the surface of the fluid, not dissolving readily, and its fumes seem to destroy germs entering the bottle. He has thus kept white of egg unaltered for ten years, and a 5 per cent. solution of gelatin for a year or more, without change. Solutions for hypodermic injection can be thus kept indefinitely, he states, without growth of microorganisms. In control solutions, all kinds of molds and bacilli rapidly proliferate. Even if the lump of gum camphor, the size of a pea or larger, dissolves in the fluid—which is liable to happen in case there is alcohol in the fluid—this does no harm as camphor is used both internally and hypodermically.

87. **Evolution of Tabes.**—Ciuffini remarks that in the last five years or so it seems to be the general impression that the course of tabes is milder than it used to be, and not so fatally progressive. To determine whether there is a basis for this assumption, he has been studying 200 cases of tabes dating from 1895 to 1915. He classifies them by five-year periods, from the records of the Rome clinic for nervous diseases. There is no doubt that in the last decade the tabes has shown a marked tendency to be arrested in the stage of the pains and crises, and that this phase has been slower in developing. In the first five year period, 82.4 per cent. of the patients were men, but this proportion between the sexes has gradually altered so that in the last five year period, only 66 per cent. were men and 34 per cent. women. There were only two or three farmers in the whole series. A history of syphilis was evident in 54 per cent. and dubious in 41.5 per cent., but in 4.5 per cent. nothing could be detected to suggest syphilis. Two of the tabetics had contracted syphilis at the age of 12 and 14. In only three cases did contagion occur after 40. In two cases the onset of the tabes was at 62 and 64. The interval after infection before the tabes developed ranged from one year in two cases, two years in two cases and three years in four cases, to the maximum of thirty-two years in one case; the average was between six and fifteen years. There was a history of abuse of alcohol in 55 per cent. of the total 200, while an inherited nervous taint was evident in 20 per cent. The proportion of alcoholism increased from 38 per cent. in the first period to 76 and 62 per cent. in the last two. Lancinating or other pains were the first manifestation of the tabes in 70 per cent. In 10 per cent. the first sign of trouble was paresthesia, formication in the hands, legs and face, girdle sensations in chest or abdomen, cold hands and feet, and a sensation of cotton under the feet. This proportion gradually increased until the cases of this kind formed 34 per cent. in the last period. Hyperesthesia of the skin was noted in only two patients, while six complained of headache as the initial symptom of the tabes. In a few cases there was such extreme weakness of the legs as to suggest actual slight paresis for a time. Gastric crises were the first symptoms to attract attention in from 9 to 14 per cent.; diplopia in 19 per cent. Amblyopia occurred in from 7.5 to 30 per cent. during the various periods; amaurosis in 1 per cent.

In the further course of the cases, a tendency to arrest of the anatomic and clinical course was strikingly evident in the later periods. His figures show further that the interval between infection and the onset of the tabes has grown longer. On the other hand, the simultaneous development of spinal and cerebral symptoms has grown much more frequent. Analysis of the total 200 cases confirms von Malaisé's statement that the outlook is graver with "superior tabes" and also when the interval between infection and tabes is short. The tabes is more apt to run a milder course in men than in women.

88. **The Eosinophil Cells.**—Marchesini is docent for histology and microscopic technic at Rome, and he here presents an illustrated description of his extensive experimental and clinical researches on the eosinophil cells. Everything seems to indicate, he says, that these cells, instead of being simple phagocytes, have an exalted function as a nourishing cell, possibly possessing a special secretion, not only for purposes of defence but serving also as a preparatory substratum for reedification of tissue wherever there are toxic substances to be neutralized, foreign substances or animal parasites to be encapsulated, or losses of tissue to be repaired.

Riforma Medica, Naples

1916, XXXII, No. 48, pp. 1313-1340

89 *Nature of Fatigue Toxins and Antitoxins. L. Ferrannini and S. Fichera.—p. 1313.
90 Acute Polyneuritis Suggesting Beriberi. (Contributo ad una teoria degli ormoni vegetali.) R. Massalongo.—p. 1316.
91 To Prevent the Drying out of Culture Mediums. (Per impedire l'evaporazione nei terreni nutritivi di uso batteriologico.) A. Martiri.—p. 1322.

No. 49, pp. 1341-1368

92 Contracture of Joints from Peripheral Trauma. (Mioipertonie degli arti per traumi periferici.) G. Rummo and F. Ferrannini.—p. 1341. To be continued.
93 Intravenous Vaccination against Paratyphoid. G. Quarelli.—p. 1347.
94 The Precipitin Reaction in the Diagnosis of Epidemic Cerebrospinal Meningitis. U. Gasperini.—p. 1351.
95 Unreliability of Buchner-Soyka Technic for Cultivation of Anaerobic Bacterium—Bacillus Bifidus. C. Ninni.—p. 1356.

89. **Fatigue Toxins.**—Ferrannini and Fichera conclude here their various studies of fatigue toxins, or kenotoxins, and antitoxins. In their experiments on frogs, etc., they have apparently demonstrated in muscles, as the effect of fatigue, certain substances which act on various organs and functions in a special manner, as they describe in detail. Among their other effects they impair the nervous system, rendering it less resistant to toxic action in general. These fatigue toxins also seem to induce the production of antitoxins which neutralize their action.

Semana Medica, Buenos Aires

1916, XXIII, No. 49, pp. 583-610

96 Embryotomy with Living Fetus. J. A. Gabastou.—p. 583.
97 Mechanism of Action of Therapeutic Vaccines. M. A. Marini.—p. 585.
98 Spider and Centipede Bites. P. T. Gandia and A. Serantes.—p. 592. Concluded in No. 51, p. 642.
99 *Tuberculous Asthma; Two Cases. J. Frenguelli.—p. 602.

No. 50, pp. 611-638

100 Infantile Tuberculosis in Argentina; Prevalence and Prophylaxis. M. Acuña.—p. 611.
101 Aphasia; Two Cases. (Sobre dos casos de afemia.) L. S. Moreno.—p. 624.
102 Correction by way of the Vagina of Retrodisplacement of the Uterus Interfering with Pregnancy and Delivery. A. Chueco.—p. 628.
103 *Lymphocytosis in Syphilis. C. P. Mayer and A. C. Gourdy.—p. 636. Conclusion.

No. 51, pp. 639-666

104 *Variations in Cholesterin Content of the Blood during Menstruation. G. P. Goñalons.—p. 639.
105 Spider and Centipede Bites. (Lesiones cutaneas provocadas por insectos.) P. T. Gandia and A. Serantes.—p. 642. Commenced in No. 49, p. 592.
106 Treatment of Congenital Twisted Feet. (Caso de tratamiento de pies torcidos congenitos.) E. M. Cavazzutti.—p. 645.
107 Proposed Plan for Reorganization of Public Health Service. F. Otero.—p. 648. Concluded in No. 52, p. 682.

99. **Tuberculous Asthma.**—Frenguelli reports cases of asthma in men of 28 and 43, both with signs suggesting latent tuberculosis although no focus could be found. Both were given tuberculin treatment on the basis that the asthma was an anaphylactic phenomenon from the tubercle bacilli toxins. The improvement was marked in both, and the asthma soon disappeared entirely. These were the cases showing the most

striking benefit in the shortest time of all in a much larger total experience.

103. **Lymphocytosis in Syphilis.**—See abstract 80 in The Journal of March 17, 1917, p. 884.

104. **Cholesterinemia during Menstruation.** — Goñalons recorded the findings in twenty-seven complete menstrual cycles. They show that the cholesterin content of the blood rises abruptly five, six or seven days before the menses and then gradually declines a little, but rises again as the menses become established keeping at this same level, somewhat below the early peak, to the close of the menses and then gradually dropping back to the ordinary level where it remains till it runs up abruptly anew from five to seven days before the onset of the menses. One woman with exophthalmic goiter and one with postpuerperal amenorrhea showed this same curve of the cholesterinemia although there was no uterine discharge.

Russkiy Vrach, Petrograd

1916, XV, No. 48, pp. 1129-1152

108 Pirogoff's Field Surgery. (N. I. Pirogoff i ego voennopolevaya khirurgiya.) S. Y. Shtraikh.—p. 1129.

109 *Technic for Preparing Anatomic Specimens to Keep without Fluid and Exposed to the Air. N. K. Lisenkoff.—p. 1131.

110 The Teaching of Hygiene in the Medical Schools of Russia. N. N. Kostyamin.—p. 1136.

111 Edema as Local Disturbance in the Extremities Consecutive to Trauma. (Ob otekie konechnostei poslie traumi.) V. N. Novikoff.—p. 1140.

112 *Germ of Typhus. (K etiologii sipnogo typha.) A. I. Savatieff and D. D. Lokhoff.—p. 1141.

113 Presence in Nature of Bacillus of Fish Poison. (Bac. ichthyismi i usloviyakh proniknoveniya ikh v ribnie produkti.) S. V. Konstansoff.—p. 1146.

109. **Anatomic Specimens Kept without Fluid and Open to the Air.**—Lisenkoff gives seven illustrations of large anatomic specimens which have kept from six to twenty years without loss of size or outline and in approximately the natural colors. The specimens show little shriveling, even of the skin. The specimens are prepared by soaking them for a month, at least, in a mixture of 500 parts glycerin; 1,000 parts plain water; 500 parts potassium acetate, by weight, and 40 parts liquor formaldehydi. The specimen floats on the fluid, and he covers it with absorbent cotton, this floating also on the fluid. By injecting the fluid into the vessels of the upper half, the procedure is hastened. The fluid can also be used to embalm cadavers. At first he kept the specimens on glass in wood, zinc or iron boxes or glass jars, covered with a sheet of glass. The latter never sweated, showing that evaporation was imperceptible. Some of the specimens were in such constant use in the lecture room that they were out of their receptacles most of the time, and it was found that this did no harm, so now the specimens are kept loose on the museum shelves. The muscle keeps pink and the other tints show little change, while topographic conditions are absolutely normal. The specimens illustrated are cross and lengthwise sections of the trunk, trunk with head, and trunk with thigh. Lisenkoff is professor of topographic anatomy and operative surgery at the University of Odessa, and his method has been in use for twenty years. He first used twice the amount of glycerin and only half the amount of water of the formula given above, but found the later formula equally effectual. Lately he has used 2 parts thymol (first dissolved in 20 parts alcohol), in place of the formaldehyd, and found it equally effectual. Any other equally potent antiputrefaction drug would probably answer the purpose also.

112. **Etiology of Typhus.**—The experiences related here of the constant presence of a certain micro-organism in the blood and excreta of typhus patients and cadavers seem to indicate that this is the causal agent of the disease. A disease resembling human typhus was induced in animals by injecting cultures of this bacillus. It seems to belong to the hemorrhagic septicemia group.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 13, I, No. 2, pp. 65-132

114 Disturbances in Orientation, Appreciation of Figures, Time, etc., with Localized Intracranial Process; Two Cases. W. Van Woerkom.—p. 73.

115 *Influence of Horse Paratyphoid Gland Substance on Parathyreopriva Tetany. H. W. Stenvers.—p. 85.

116 Infection of Maxillary Sinus by way of Wisdom Tooth. D. J. De Levie.—p. 94.

115. **Horse Parathyroid Treatment of Postoperative Tetany.**—This communication from the university clinic for nervous diseases at Utrecht reports the case of a young woman with the typical picture of postoperative tetany after thyroidectomy. An attack of tetany occurred before she had left the table. Her exophthalmic goiter has been cured by the two operations on the thyroid, the interval eighteen months. The tetany was treated with fresh parathyroids from the horse. Stenvers obtained them from the slaughter house in their natural setting, and separated them out himself. On account of the scarcity of horses due to the war, he was unable to get as many as he would have liked. His microscopic examination of parathyroids from dogs and calves seemed to show that they consisted of true thyroid tissue, so he did not attempt to use them. The horse parathyroids were placed in sterile physiologic solution as soon as they were separated out, and they were served mixed with the food at the earliest possible moment. The electric reactions, the elimination of creatinin in the urine, and the patient's general condition were kept under constant supervision, and no drugs of any kind were given. An extremely favorable influence from this parathyroid treatment was evident, but it lasted only while the treatment was kept up. Consequently two parathyroid glands, just removed from two patients with exophthalmic goiter, were implanted and this had also a favorable influence which proved durable, so that the patient is now nearly free from tetany, with full working capacity restored. Before treatment, the creatinin content of the urine averaged 1342 mg. a day. Under treatment with horse parathyroids it dropped to 612 mg. During the following month, it averaged 726 mg. After the transplantation, it averaged 586, and two or three months later 884 mg. When the figure was below 613 mg. the patient felt well and had no spasms. The creatinin output is thus a good index of conditions in tetany.

Hospitalstidende, Copenhagen

January 17, LX, No. 3, pp. 49-72

117 *Determination of Difference in Carbon Dioxid Tension in Arterial and Venous Blood. (Om Bestemmelse af Forskellen mellem arteriel og venøs Kulsyrespænding under normale og pathologiske Forhold samt om Anvendelsen af denne Forskel til Maalingen af Forandringer i Minutvolumens Størrelse.) C. Sonne.—p. 49. Conclusion.

118 White Spots in Nails from Handling Brine. (Leukonychia artificialis. Høkernegle.) E. Sylvest.—p. 59.

117. **Determination of Carbon Dioxid Tension in Arterial and Venous Blood.**—Sonne describes a method with which it is possible to determine the difference in carbon dioxid tension of the arterial and venous blood. This difference, in connection with the carbon dioxid tension of the alveolar air affords insight into changes in the rapidity of the blood current. We thus have a reliable means for estimating the variations in the amount of blood passed through the heart per minute. In four patients with auricular flutter and lost compensation the minute volume was reduced by 50 per cent. In two patients with well compensated heart disease, the findings suggested that the rapidity of the blood current was somewhat reduced, probably to permit better utilization of the oxygen in the blood.

Ugeskrift for Læger, Copenhagen

January 11, LXXIX, No. 2, pp. 43-84

119 *The Importance of the Wassermann Reaction for the Internist. V. Scheel.—p. 43. A. Faber.—p. 49.

119. **The Wassermann Reaction in Study of Internal Diseases.**—Scheel has had the Wassermann test applied to all the adult patients at the Bispebjærg Hospital since 1913. By this means it has been possible to detect and give specific treatment in cases in which there was absolutely nothing else to suggest syphilis.

Faber gives tabulated details of all the patients giving a positive reaction, discussing various problems as to treatment when this is the only thing to suggest syphilis.